ALTO-SHAAM®

Combitherm®

Combination Oven / Steamer

Shown with ExpressTouch control and optional hand sprayer

CT EXPRESS™

4•10ESi

4•10ESiVH

4•10CCi

CTX4–10E

CTX4–10EC

CTX4–10EVH

24•7 Your Service Hotline 1-800-558-8744

• TECHNICAL

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How to Use this Technical Service Manual

This manual has been compiled as a complete resource for a technician working on CT Express models. It includes necessary product information and drawings, along with helpful troubleshooting procedures.

Introduction gives a quick overview of the CT Express to aid in model identification.

Sections A through E contain information applying to all CT Express models:

- **CONTROL PANEL IDENTIFICATION** includes information on using the controllers and operating instructions. It is the same material supplied to the customer.
- **PREVENTIVE MAINTENANCE** includes procedures for cleaning with our without the CombiClean option. This information is also supplied to the customer.
- **SERVICE MODE AND ERROR CODES** explains the special programming available to you as a technician to view status, make adjustments and test functions on models equipped with Simple and Express Touch Controllers. Information is also included on the use of displayed error codes to resolve problems and on the functions that can be operated under fault conditions.
- **TROUBLESHOOTING TREES** are provided for the most common conditions you will be required to address.
- **COMBITHERM PARTS** has drawings and lists of available parts that are common to all electric models.

Sections F contains Wiring Diagrams that is specific to each model.

Navigation

Starting with the Main Table of Contents on the following page, you may click on any item that has a page number and quickly jump to the information you need. Note that you may Return to the Main Table of Contents from the bottom of any Section Contents page.

Printing

You may print the Current Page or any range of pages. Here's a tip: Because printers vary in their capacity to handle large drawings, make a test print of one of the Wiring Diagrams before printing the model's section.

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INTRODUCTION

MODEL NUMBERS

This manual covers the following CT Express models:

4.10esi

4.10esiVH

4.10CCi

CTX4-10E

CTX4-10EC

CTX4-10EVH

FEATURES AND OPTIONS

Available on all models:

- Panel color choices
- Left-hand door
- Hand sprayer
- Single-point product temperature probe
- CombiClean® Tablet based cleaning system
- Stacking capabilities

Available only on ExpressTouch Control models:

- Smoker Mode
- Delta-T and Cook & Hold functionality
- HACCP data access
- Gold-n-Brown™ Feature
- Broiler element (not available on 1ph units)
- Catalytic Converter (CTX4-10EC only)

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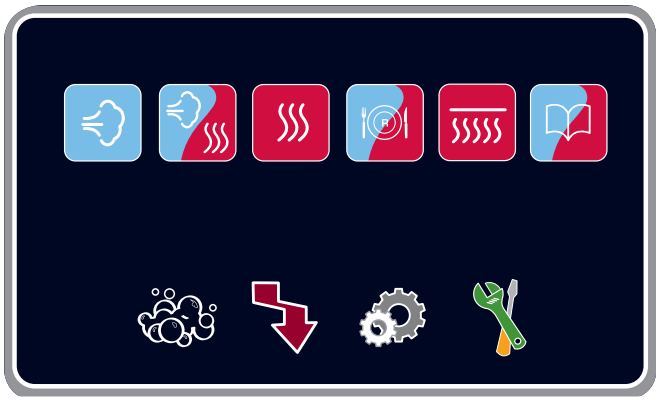
EXPRESSTOUCH OPERATING INSTRUCTIONS

START-UP PROCEDURES

When the oven is powered on, the ExpressTouch screen illuminates. "Loading" indicates that the software is booting up. The screen will also indicate what level of progress has been made as the software becomes fully operational.

MAIN MENU SCREEN



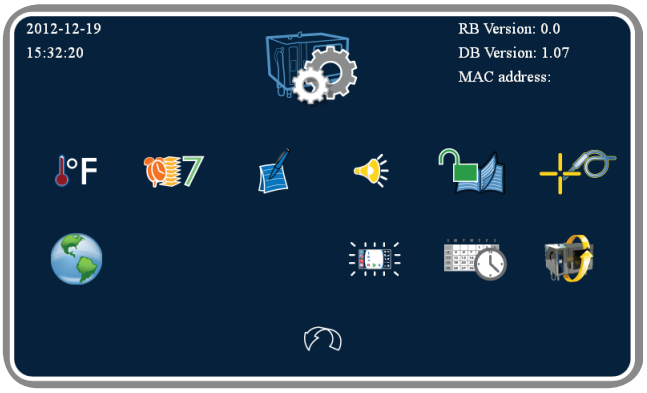
Cleaning Mode (optional)
Four (4) cleaning levels are available: rinse, light, normal, and heavy-duty cleaning.

Download/Upload Files and HACCP Access (optional)
Download all preprogrammed recipes (factory default and user-programmed) and HACCP data to a USB memory stick.

Settings
Change factory default settings. *See next page for more information.*

Service Mode (password protected)
This mode is only available to qualified service technicians.

SETTINGS SCREEN



Fahrenheit or Celsius Function - Choose temperature format.
Note: **After choosing your format, return to the Main Menu screen and then Press Oven Power switch off.**

Language Choice - English, Spanish, Mandarin, French, German, Korean and Russian are available.

Multi-shelf Timer Number of Shelves - Choose the default number of items in the oven to be used by the multi-shelf timer.

Default Memo - Revert time/temperature setting to factory defaults when switching modes or keep the last user setting.

Sound/Alarm Settings - Change alarm sounds and volume.

Touchscreen Brightness - Adjust brightness of display screen.

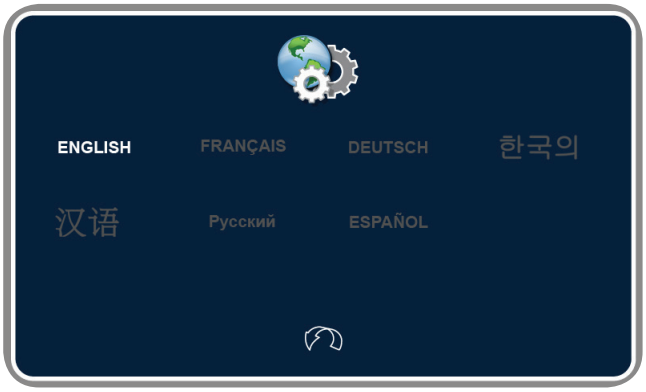
Lock/Unlock Recipes - Password protect preprogrammed recipes.

Set/Change Date & Time - Set or change oven time and date settings.

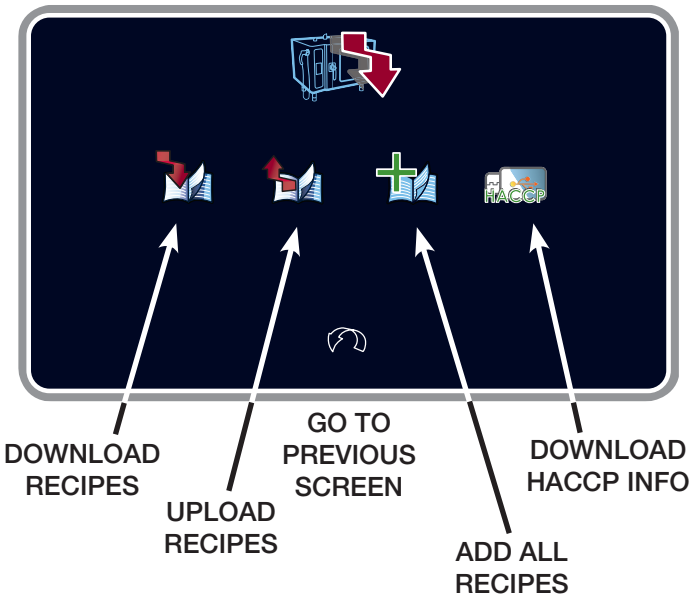
Calibrate Product Probe (optional)

Software update - Upload new control software to the oven using a USB drive.

Return to Previous Screen - Return to previous screen when finished adjusting settings.



UPLOAD/DOWNLOAD SCREEN



Download Recipes
Copy ***all*** recipes from USB memory stick to oven. This will replace and overwrite existing recipes.

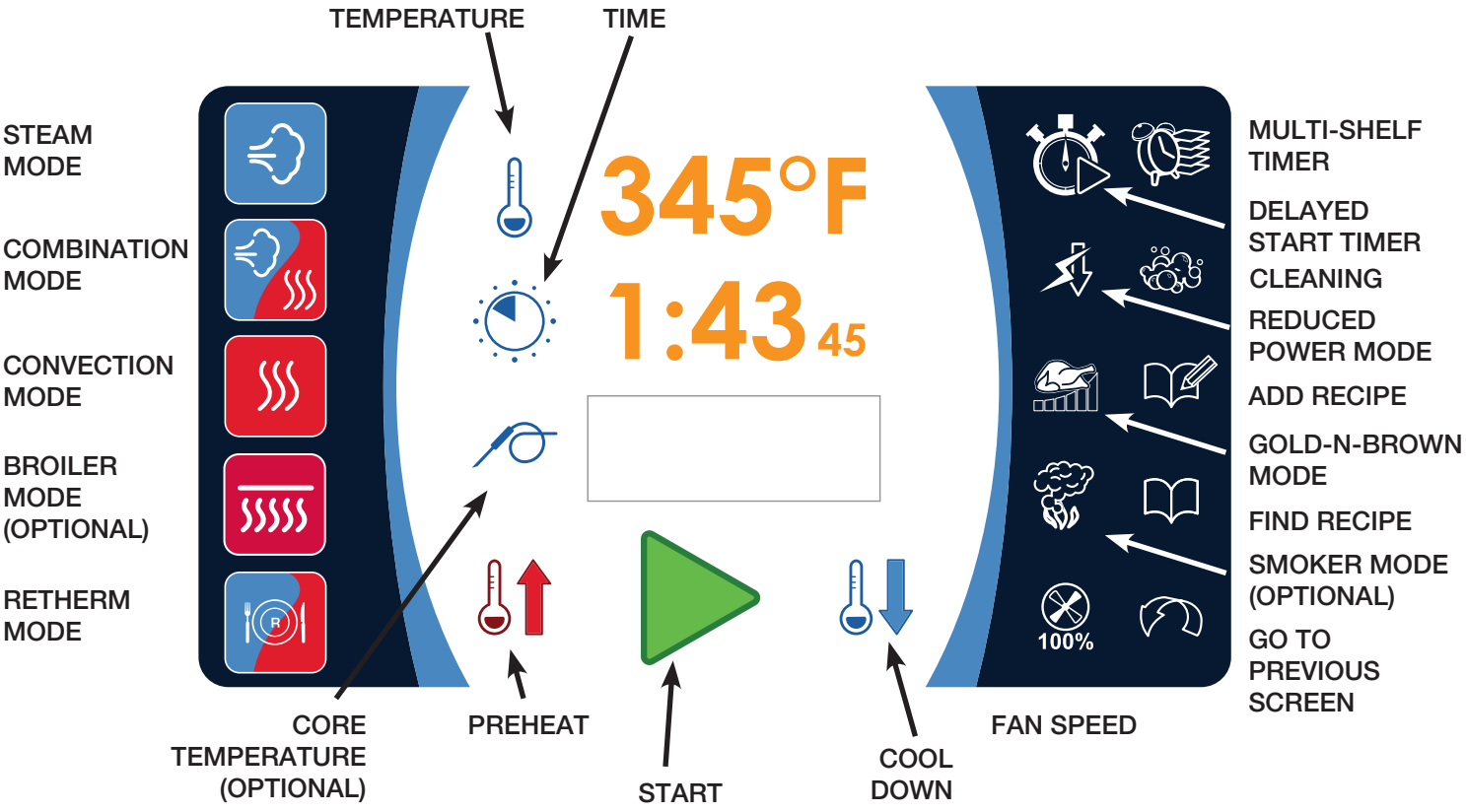
Upload Recipes
Copy ***all*** recipes from oven control to USB memory stick.

Add All Recipes
Copy ***all*** recipes from USB memory stick to the oven control. This will add the recipes to the beginning of the existing recipe list.

HACCP Data (optional)
Download data to a USB drive for review in a .txt file format.

EXPRESSTOUCH OPERATING INSTRUCTIONS

COOKING MODE SCREEN



COOKING MODE SCREEN IDENTIFICATION

MAIN MENU ICONS

Power ON key
Activates power to the oven and automatically fills the steam generator equipped models with water that will heat to a stand-by mode temperature of 188°F (77°C).

Power OFF key
Press once to initiate power shut down sequence to the oven. ***Note:*** Oven will not shut down during a cooking cycle. You may need to press harder due to the material thickness. Firmly press and hold the OFF key for 10 seconds to power down the oven ***ONLY IF*** the control has locked and is unresponsive.

Steam Mode
The oven will operate in the steam mode at a temperature range of 85°F to 250°F (30°C to 121°C).

- Automatic steaming at 212°F (100°C) factory-set default.
- Quick steaming between 213°F and 250°F (101°C and 121°C).
- Low temperature steaming between 85°F and 211°F (29°C and 99°C).

Combination Mode
Selection key for cooking with a combination of steam and convection heat. Can be set between 212°F to 485°F (100°C and 252°C).

Convection Mode
Selection key for convection cooking without steam at a temperature range of 85°F to 485°F (29°C to 252°C).

Broiler Mode (optional)
Quickly and efficiently toast or broil sandwiches, nachos, soups, and desserts with the top shelf broiling element.

Retherm Mode
Food rethermalization or reheating mode will operate with automatic steam injection at a temperature range of 245°F to 320°F (120°C to 160°C).

Temperature
Used to set the required cooking temperature, to recall the set cooking temperature, or to check the actual oven temperature.

Time
Used to set the required cooking time or recall the set cooking time.

Core Temperature (optional)
Used to set the required internal product temperature, to recall the internal product temperature set by the operator, or to display the current internal temperature of the product.

Preheat Mode
Preheats the oven cavity to a temperature set by user.

Cool Down Mode
Lowers temperature of the oven cavity at an accelerated pace to temperature set by user.

Delayed Start Time
Quick and simple way to begin preheating your oven while you're away, and ready to go when you are.

Start/Stop
Initiates all cooking mode functions and programmed procedures stored in memory. Stops an activated cooking mode or programmed procedure currently in progress.

AUXILIARY FUNCTION ICONS

Reduced Power Mode
Used to reduce kitchen power peaks and energy consumption.

Gold-N-Brown Mode
This indicator will illuminate when the browning function is set by the operator in a timed or programmed cooking cycle in any mode. Level 1 provides least amount of browning, level 6 the most.

Fan Speed
This indicator will illuminate whenever the operator sets a reduced fan speed to protect products affected by high-velocity air movement.

Return to Previous Menu

Add Recipe
Used to create, change, duplicate, and delete programmed menus.

Find Recipe
Access a menu list of all stored cooking programs.

Multi-shelf Timer
Use separate timers for one or more shelves in the oven compartment (only visible in time mode).

Steam Injection (not shown on illustration)
Press to add moisture in any cooking mode. Steam will inject into the cavity as long as the icon is touched.

Delta-T Core Temperature (optional) - only visible in certain modes Cook by probe. Mode automatically adjusts cooking temperature in proportion to the internal temperature of the product.

Smoking Mode (optional) - only visible in convection mode or combination mode. This indicator will illuminate when the smoking function is set by the operator in a timer, probe or programmed cooking cycle.

EXPRESSTOUCH FACTORY DEFAULT SETTINGS

COOKING MODE	OVEN TEMPERATURE	CORE TEMPERATURE	COOKING TIME
Steam	212°F (100°C)	160°F (70°C)	25 minutes
Combination Steam	350°F (175°C)	160°F (70°C)	70 minutes
Convection	350°F (175°C)	160°F (70°C)	30 minutes
Broiler/Finishing (optional)	____°F	N/A	—— : ——
Retherm (available on ExpressTouch only)	275°F (135°C)	160°F (70°C)	5 minutes

HACCP ACCESS

The ExpressTouch Combitherm meets the requirements of established HACCP criteria by providing automated sampling, record keeping, set-point validation, recipe used, dates and time. Data is captured when Core Temperature Probe cooking method is chosen. This information can be downloaded to a USB drive and then copied to your computer. The file format is text (.txt).

NOTE: You can access this information from the Upload/Download Screen. *See illustrations on page 6 for navigation.*

CAUTION: The CombiOven USB port is not recommended for use with personal hand held devices.

1. To download the data collected, remove the cap of a USB port located on the side of the oven and insert the USB flash drive. If the flash drive is not recognized by the Combitherm, a question mark will appear on screen. Try again with another flash drive device or call Alto-Shaam Service.
2.

PRESS TO DOWNLOAD INFORMATION.
3. WAIT FOR THE ICON TO CHANGE FROM LOADING TO COMPLETE.
4. PRESS TO CONFIRM TRANSFER.
5. Remove the USB flash drive and replace the cap on the USB port.

The download process will automatically create a folder on the USB flash drive titled “haccp”. Each text file contains cooking program specifics. *See illustration below.*

```
HACCP
Unit:                          00:30:D6:FF:28:63

Date:                          2011-01-09
Program:                       Steam

Start time:                    22:10:31
Stop time:                     22:14:37
Elapsed cook time:             00:04

Multi shelf timer:             no
Reduced energy:                no
Recipe active:                 no

Temperature unit:               °F

Cavity start temperature:      191
Cavity stop temperature:       217
Cavity temperature reached:    00:02

Core start temperature:        176
Core stop temperature:         215
Core temperature reached:      00:00

Door open count:               0
```

EXPRESSTOUCH OPERATING INSTRUCTIONS

Turn on and preheat the oven

Alto-Shaam recommends preheating the Combitherm® before cooking.

- Press the **Power** ON key. or Green light will appear while oven is booting up.
- Choose a **Mode**. Steam Combi Convection Retherm
- Choose **Preheat**.
- Type temperature on keypad and press **Enter**.
- Oven beeps when it is preheated.

To cook with preprogrammed recipes

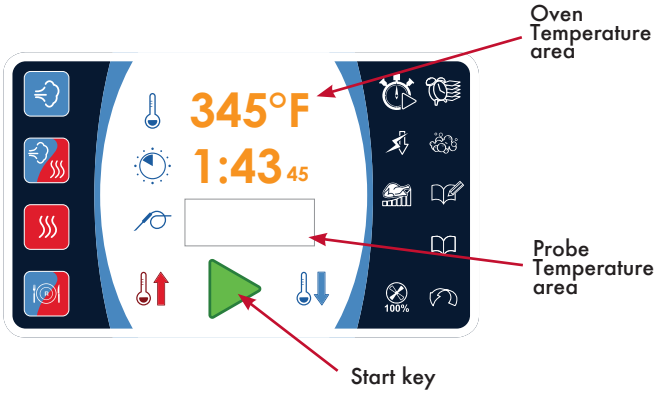
- Load food into oven.
- Press the **Recipes** key.
- Locate food item program by scrolling through pages using arrow keys.
- Press preprogrammed food item icon.
- Oven begins operating automatically.

NOTE: TO SHUT THE OVEN OFF, PRESS AND HOLD FOR FIVE SECONDS. THE RED LIGHT WILL APPEAR INDICATING THAT THE OVEN WILL BEGIN THE SHUT DOWN PROCESS.

TO FORCE SHUT DOWN IN THE RARE EVENT THE CONTROL LOCKS UP, PRESS AND HOLD FOR TEN SECONDS.

To cook manually by probe

- Choose a **Mode**. Steam Combi Convection Retherm
- Press the **Oven Temperature** area to the right of the thermometer icon, set oven temperature on the keypad, and press **Enter**.
- Press the **Probe Temperature** area to the right of the probe icon, set probe temperature on the keypad, and press **Enter**.
- Load food into oven and insert probe into food.
- Press the **Start** key.



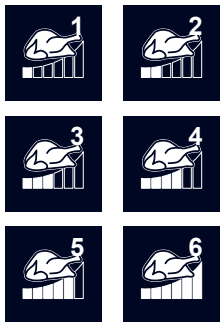
To cook manually by time

- Choose a **Mode**. Steam Combi Convection Retherm
- Press the **Oven Temperature** area to the right of the thermometer icon, set oven temperature on keypad, and press **Enter**.
- Press the **Cook Time** area to the right of the timer, set cook time on keypad, and press **Enter**.
- Load food into oven.
- Press the **Start** key.

EXPRESSTOUCH OPERATING INSTRUCTIONS

To use Gold-n-Brown™

- Follow the first three steps of **"To cook manually by probe"** or **"To cook manually by time"** from the front of this sheet.
- Press the **Gold-n-Brown** key.
- Select the desired Gold-n-Brown level and press the corresponding key.



- Press the **Start** key.

To program a recipe

- Press the **Add a Recipe** key.
- Follow the first three steps of **"To cook manually by probe"** or **"To cook manually by time"** from the front of this sheet for each cooking step.
- If there is more than one cooking step, press the **Write** key between each step.
- After the last cooking step, press the **Confirm Changes** key.
- A keypad will appear. Input the name of the recipe and press the **Confirm Changes** key.

To clean the oven

- Press the **Cleaning** key.
- Press the **Water On** key.
- If oven is too hot to proceed, the **Oven Too Hot** warning screen will appear. Open the oven door to allow the oven to cool. When the oven is finished cooling, begin the cleaning procedure again.
- Select **Rinse**, **Light**, **Normal**, or **Heavy Duty** cleaning.

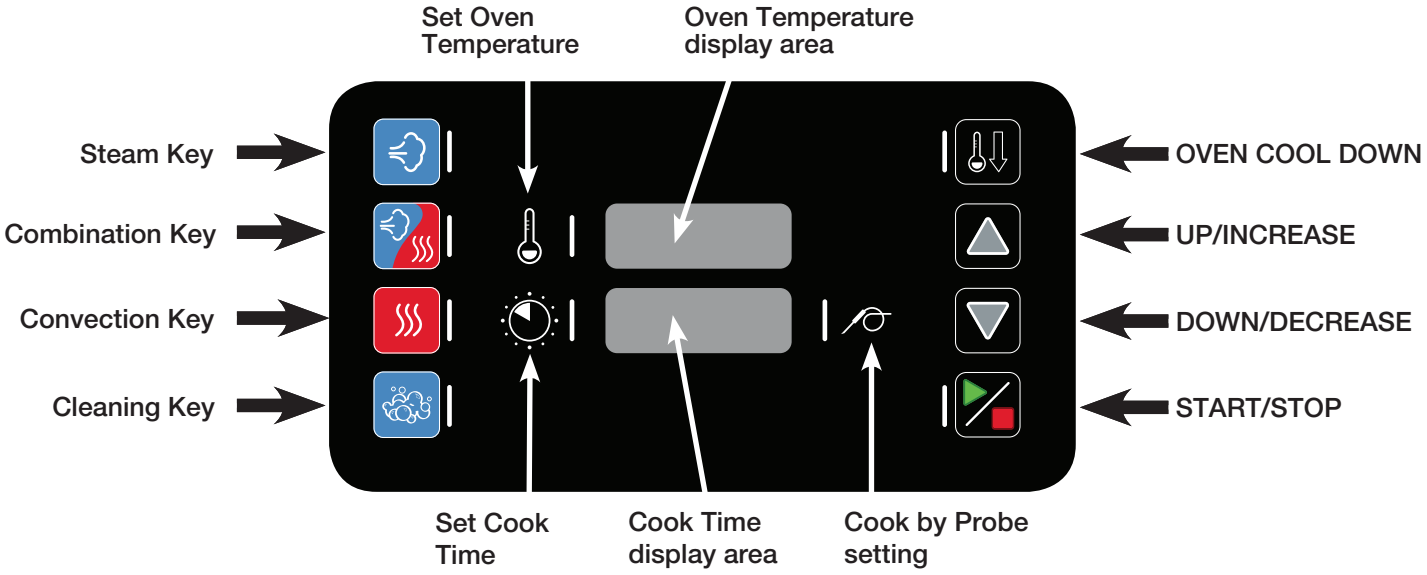
- For **Light**, **Normal**, or **Heavy Duty**, insert appropriate number of CombiClean® tabs as directed by the touchscreen, or spray CombiClean liquid cleaner inside the oven. Close the oven door and press the **Start** key.
- Oven beeps when it is done cleaning. Leave door slightly ajar when cleaning is finished.

NOTE: TO SHUT THE OVEN OFF, PRESS AND HOLD FOR FIVE SECONDS. THE RED LIGHT WILL APPEAR INDICATING THAT THE OVEN WILL BEGIN THE SHUT DOWN PROCESS.

TO FORCE SHUT DOWN IN THE RARE EVENT THE CONTROL LOCKS UP, PRESS AND HOLD FOR TEN SECONDS.

SIMPLE CONTROL OPERATING INSTRUCTIONS

CONTROL PANEL IDENTIFICATION



The Steam mode provides the operator with the ability to steam, poach, or blanch. This mode will automatically steam at the boiling point of water; quick-steam above the boiling point for faster cooking results; or low temperature steam, below the boiling point, for more delicate products such as pâté, mousse, seafood, or custard.

The Combination mode will prove to be the most versatile and widely used mode the Combitherm oven has to offer. It will produce the best possible results on the widest variety of products — all within the shortest period of time. The unique control function of this mode enables the operator to roast or bake with a combination of steam and convection heat. In addition to shorter cooking times, this combination of steam and heat offers less product shrinkage and more moisture retention than obtained in a standard convection oven.

The Convection mode operates with hot circulated air within a temperature range of 85° to 485°F (29 to 252°C). For many applications, better results may be achieved with the Combination mode; therefore, the operator may want to consider using the Convection mode on a more limited basis.

Oven Cool Down Process:

- Cooking process must be inactive
- Press "Cool Down" button until LED lights (LED remains ON while in Cool Down mode)
- Press "Decrease Value" or "Increase Value" to adjust cool down temperature
- Cook temperature display area is used to display cool down temperature
- Display will show last valid cool down temperature
- Cool down temperature range is 85° - 575°F (30° - 300°C)
- Press "Start/Stop" until LED lights to accept cool down temperature and initiate cool down process
- Door must be open to start cool down process; Cook time display area will display "door" if door is not open
- Cook temperature display area will display set cool down temperature
- Cook time display area will display current cool down temperature

Fahrenheit or Celsius Function - choose temperature format:

- Unit is not in a cooking or cleaning process
- Press "Set Cooking Temperature", "Decrease Value" and "Increase Value" buttons simultaneously for 1 second
- Cooking temperature display area will display last value "C" or "F"; Display will alternate between "C" and "F" every 2 seconds
- Press "Start/Stop" key when the display is showing the desired value ("C" or "F")

SIMPLE CONTROL OPERATING INSTRUCTIONS

Turn on and preheat the oven

Alto-Shaam recommends preheating the Combitherm® before cooking.

- Press the **Power** key. or Green light will appear while oven is booting up.
- Choose a **Mode**. Steam Combi Convection
- Press **Oven Temperature** key.
- Adjust temperature with arrow keys.
- Press **Cook Time** key.
- Adjust time with arrow keys.
- Press the **Start/Stop** key.
- Preheat oven before loading food.

To cook manually by probe

- Choose a **Mode**. Steam Combi Convection
- Press the **Oven Temperature** key; adjust temperature with arrow keys.
- Press the **Probe Temperature** key; adjust temperature using the arrow keys.
- Load food into oven and insert probe into food.
- Press the **Start/Stop** key.

To cook manually by time

- Choose a **Mode**. Steam Combi Convection
- Press the **Oven Temperature** key; adjust temperature with arrow keys.
- Press the **Cook Time** key; adjust time using the arrow keys.
- Load food into oven.
- Press the **Start/Stop** key.

NOTE: TO SHUT THE OVEN OFF, PRESS AND HOLD FOR FIVE SECONDS. THE RED LIGHT WILL APPEAR INDICATING THAT THE OVEN WILL BEGIN THE SHUT DOWN PROCESS.

TO FORCE SHUT DOWN IN THE RARE EVENT THE CONTROL LOCKS UP, PRESS AND HOLD FOR TEN SECONDS.

PREVENTATIVE MAINTENANCE

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COMBICLEAN CLEANING AGENTS

CombiClean tablets are to be used *only* with the factory installed automatic cleaning option.

⚠ DANGER

RUBBER GLOVES MUST BE WORN WHEN USING COMBICLEAN TABLETS OR SPRAY OVEN CLEANER.

⚠ DANGER

PROTECTIVE EYE WEAR MUST BE WORN WHEN USING SPRAY OVEN CLEANER.

NOTE: **Use authorized Combitherm cleaner only.**

Unauthorized cleaning agents may discolor or harm interior surfaces of the oven. Read and understand label and material safety data sheet before using the oven cleaner.

CAUTION: **Causes eye, skin, and respiratory tract irritation. keep out of reach of children.**

PRECAUTIONS:

- Do not take internally.
- Avoid contact with eyes and skin.
- Use rubber gloves when using this product.
- Wash hands thoroughly after handling.
- Avoid mixing with strong, concentrated acids.

FIRST AID:

Skin: Flush with water. Remove contaminated clothing and do not re-wear until washed. If irritation persists see a physician.

Eyes: Flush with water for 15 minutes. See a physician immediately.

Inhalation: If difficulty in breathing occurs, leave area immediately and do not return until dust is settled. If irritation persists, see a physician.

Ingestion: Drink large quantities of milk or water. DO NOT INDUCE VOMITING. See a physician immediately.

PROTECTIVE PACKAGING OF TABLETS WILL BEGIN TO DISSOLVE ONTO SKIN IF HANDLED WITH DAMP OR WET HANDS.

PREVENTATIVE MAINTENANCE

In addition to the routine cleaning and maintenance procedures, there are several additional steps to be taken for both sanitation and to keep the oven running efficiently. These additional safeguards will help prevent down time and costly repairs.

DO NOT DISPOSE OF GREASE, FAT, WOOD CHIPS OR SOLID WASTE DOWN THE OVEN DRAIN.
Fats and solids will eventually coagulate in the drain system, causing blockage. Consequently, water will back-up into the condenser and interior oven compartment, resulting in an oven that is inoperable.

MAKE CERTAIN THE DRAIN SCREEN IS ALWAYS IN PLACE. REMOVE ANY SOLID WASTE MATERIAL FROM THE DRAIN SCREEN BEFORE IT ENTERS THE DRAIN SYSTEM.
The routine removal of solids from the drain screen will help prevent blockage.

USE THE AUTHORIZED COMBITHERM OVEN CLEANER ONLY.
The use of unauthorized cleaning agents may discolor or harm the interior surfaces of the oven.

TO PROLONG THE LIFE OF THE DOOR GASKET, CLEAN THIS ITEM DAILY.
The acids and related compounds found in fat, particularly chicken fat, will weaken the composition of the gasket unless cleaned on a daily basis. Wipe with a hot, soapy cloth.

TO ADDITIONALLY PROTECT GASKET LIFE, ALLOW OVEN DOOR TO REMAIN SLIGHTLY OPEN AT THE END OF THE PRODUCTION DAY.
An open door will relieve the pressure on the door gasket.

ROUTINELY CLEAN DOOR HINGES.
Open oven door to relieve tension. Clean all parts of the hinge.

PROBE CABLE PLACEMENT.
The probe cable should not be placed near the broiler element at the top of the oven.

When smoking is completed, remove smoker box from oven. Dispose of wood chips in a fireproof waste receptacle.

DANGER

AT NO TIME SHOULD THE INTERIOR OR EXTERIOR BE STEAM CLEANED, HOSED DOWN, OR FLOODED WITH WATER OR LIQUID SOLUTION OF ANY KIND. DO NOT USE WATER JET TO CLEAN.

SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF APPLIANCE IS FLOODED

CLEANING AND PREVENTATIVE MAINTENANCE

PROTECTING STAINLESS STEEL SURFACES

It is important to guard against corrosion in the care of stainless steel surfaces. Harsh, corrosive, or inappropriate chemicals can completely destroy the protective surface layer of stainless steel. Abrasive pads, steel wool, or metal implements will abrade surfaces causing damage to this protective coating and will eventually result in areas of corrosion. Even water, particularly hard water that contains high to moderate concentrations of chloride, will cause oxidation and pitting that result in rust and corrosion. In addition, many acidic foods spilled and left to remain on metal surfaces are contributing factors that will corrode surfaces.

Proper cleaning agents, materials, and methods are vital to maintaining the appearance and life of this appliance. Spilled foods should be removed and the area wiped as soon as possible but at the very least, a minimum of once a day. Always thoroughly rinse surfaces after using a cleaning agent and wipe standing water as quickly as possible after rinsing.

CLEANING AGENTS

Use non-abrasive cleaning products designed for use on stainless steel surfaces. Cleaning agents must be chloride-free compounds and must not contain quaternary salts. Never use hydrochloric acid (muriatic acid) on stainless steel surfaces. Always use the proper cleaning agent at the manufacturer's recommended strength. Contact your local cleaning supplier for product recommendations.

CLEANING MATERIALS

The cleaning function can usually be accomplished with the proper cleaning agent and a soft, clean cloth. When more aggressive methods must be employed, use a non-abrasive scouring pad on difficult areas and make certain to scrub with the visible grain of surface metal to avoid surface scratches. Never use wire brushes, metal scouring pads, or scrapers to remove food residue.

⚠ CAUTION

TO PROTECT STAINLESS STEEL SURFACES, COMPLETELY AVOID THE USE OF ABRASIVE CLEANING COMPOUNDS, CHLORIDE BASED CLEANERS, OR CLEANERS CONTAINING QUATERNARY SALTS. NEVER USE HYDROCHLORIC ACID (MURIATIC ACID) ON STAINLESS STEEL. NEVER USE WIRE BRUSHES, METAL SCOURING PADS OR SCRAPERS.

CLEANING SCHEDULE

DAILY GASKET CLEANING

It is important to prolong the life of the oven gasket by cleaning on a daily basis. Routine cleaning will help protect the gasket from deterioration caused by acidic foods.

1. Allow the oven to cool, then wipe the gasket and crevices with clean cloth soaked in warm detergent solution.
2. Wipe the gasket and crevices with a cloth and clean rinse water.

Do not attempt to remove gasket or place in the dishwasher.

PROBE USAGE AND CLEANING

After each use of the **CORE TEMP** mode, wipe the probe tip with a clean paper towel to remove food debris. Follow by wiping the probe with a disposable alcohol pad. Return the probe to the proper door bracket position. The probe cable should not be placed near the broiler element at the top of the oven.

Probe Cleaning Procedures

1. Remove all food debris from probe between loads and at the end of each production shift. Wipe the entire probe, probe cable assembly, and probe holding bracket with a clean cloth and warm detergent solution.
2. Remove detergent by wiping the probe, cable, and bracket with a cloth and clean rinse water.
3. Wipe probe and probe bracket with disposable alcohol pad or sanitizing solution recommended for food contact surfaces.
4. Allow probe and cable to air dry in the probe holding bracket. The probe cable should not be placed near the broiler element at the top of the oven.
5. Wipe the probe with a disposable alcohol pad prior to inserting into a new food product.

DAILY OVEN CLEANING

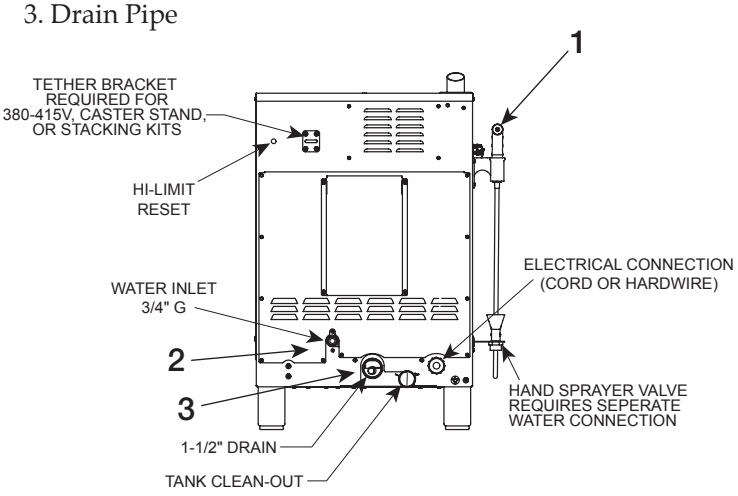
To be performed at the end of the production day or between production shifts.

CLEANING CYCLE NEEDED AFTER SMOKING

To prevent the transfer of smoke residue to non-smoked products, a cleaning cycle is required before cooking non-smoked items.

MONTHLY CLEANING

1. Spray Head
2. Water Intake Filters
3. Drain Pipe



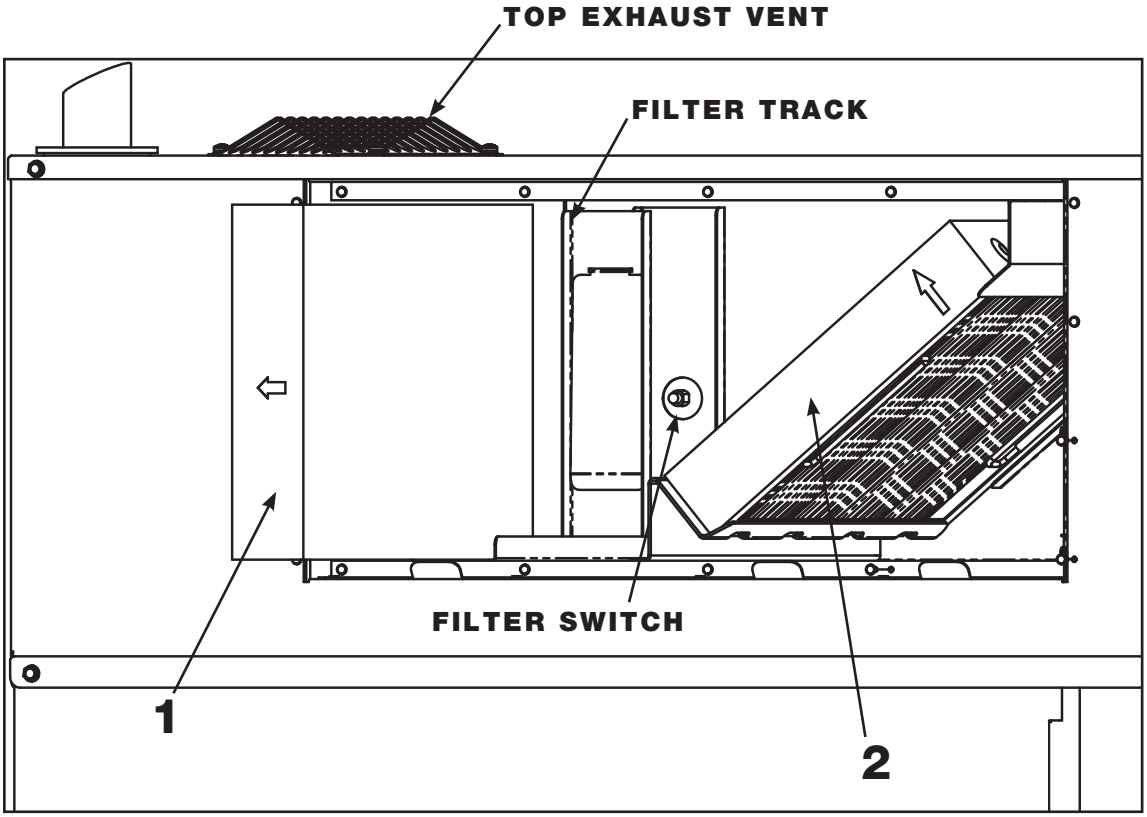
DANGER

AT NO TIME SHOULD THE INTERIOR OR EXTERIOR BE STEAM CLEANED, HOSED DOWN, OR FLOODED WITH WATER OR LIQUID SOLUTION OF ANY KIND. DO NOT USE WATER JET TO CLEAN.

SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF APPLIANCE IS FLOODED

VENTLESS HOOD MODEL



1. Charcoal Filter: The charcoal filter should be inspected for contaminant's on a regular basis. Replacement must be made at a minimum of three month intervals — more often if heavy contaminant's are visible or if the filter no longer controls odors.

To remove the charcoal filter, pull and slide out. When replacing the filter, ensure that the filter clip is in place at rear of the filter. Make certain the air flow arrow(s) point toward the hood fan (back of unit), and that the filter is replaced using the filter track in the metal back plate provided with the hood.

FI-24114

2. Grease Filter: Cleaning frequency should be based on oven usage with a maximum of two weeks between cleaning if the oven is used for non-grease laden products or steam applications only. Grease laden products require cleaning frequency of at least once a week.

Remove the grease filter by pulling it straight out of the housing. Place the filter in the dishwasher or wash separately by placing in hot, soapy water until all grease and particles have been removed. Rinse thoroughly. Allow the filter to air dry before reinstalling.

To replace the grease filter, the metal handles on the filter casing should be facing toward the front of the unit.

FI-24113

EXPRESSTOUCH WITH COMBICLEAN OPTION

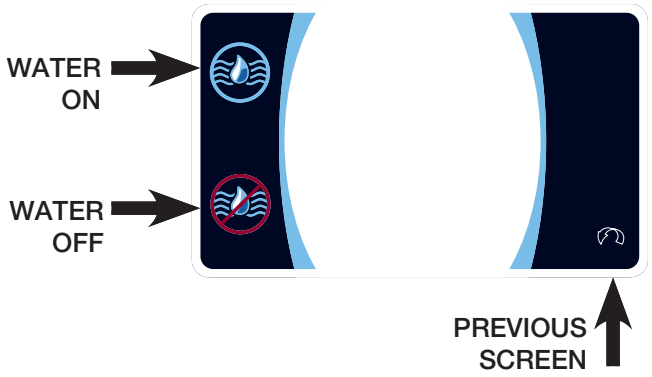
Four (4) cleaning levels are offered: rinse, light, normal, and heavy-duty cleaning. CombiClean® tablets or Combitherm liquid spray cleaner may be used. Side racks and shelves may remain inside oven during cleaning. Remove solid wastes from the bottom of the oven and the drain screen to prevent blockage.

Note: *If a power outage were to occur during any of the cleaning cycles, the oven will begin a six (6) minute forced-rinse cycle.*

SELECT CLEANING MODE FROM ANY SCREEN.

NOTE: If oven is too hot to safely clean, an oven with red interior will appear on the screen and the cool down function is automatically activated. Allow oven to cool to 200°F (93°C) before cleaning.

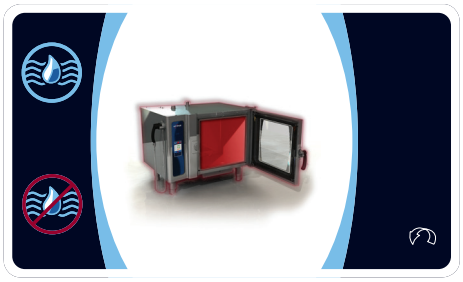
CLEANING MODE MENU



PRESS WATER ON ICON TO CONFIRM THAT WATER SUPPLY IS TURNED ON.

OVEN TOO HOT WARNING

Must allow oven to cool down before inserting CombiClean tabs or spraying with cleaner



SELECT DESIRED LEVEL OF CLEANING.

RINSE (20 MINUTES)

LIGHT (30 MINUTES)

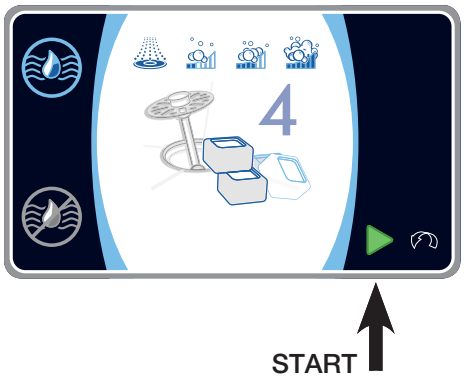
NORMAL (1 HOUR 21 MINUTES)

HEAVY-DUTY (2 HOURS 6 MINUTES)

INSERT APPROPRIATE NUMBER OF COMBICLEAN 1 OZ OR 0.5 OZ TABLETS as directed by touchscreen or spray interior of oven with combitherm liquid spray cleaner. User may add one additional tablet in either normal or heavy duty modes for particularly dirty ovens.

COMBI CLEANER REQUIREMENT

The number of required CombiClean tabs is shown.



TOUCH THE GREEN START ARROW ICON TO BEGIN CLEANING.
Oven beeps when cleaning is finished.
Leave door slightly ajar.

CLEANING IN PROCESS

SIMPLE CONTROL WITH COMBICLEAN OPTION

One (1) heavy-duty cleaning cycle (2 hours 5 minutes) is offered. CombiClean® tablets or Combitherm liquid spray cleaner may be used. Side racks and shelves may remain inside oven during cleaning. Remove solid wastes from the bottom of the oven and the drain screen to prevent blockage.

Note: *If a power outage were to occur during any portion of the cleaning cycle, the oven will begin a six (6) minute forced-rinse cycle. Cook temperature display area will display "RIN". Cook time display area will display "-.--"*

SELECT CLEANING MODE.

NOTE: If oven is too hot to safely clean, "door" will appear on the screen and the cool down function is automatically activated. Open the oven door to allow oven to cool to 200°F (93°C) before cleaning.

Cooking temperature display area will display "CLn". Cooking time display area will display "6" - referring to the number of cleaning tablets to insert.

Lift interior oven drain screen and insert six (6) COMBICLEAN TABLETS or spray interior of oven with Combitherm liquid spray cleaner. User may add one additional tablet for particularly dirty ovens.

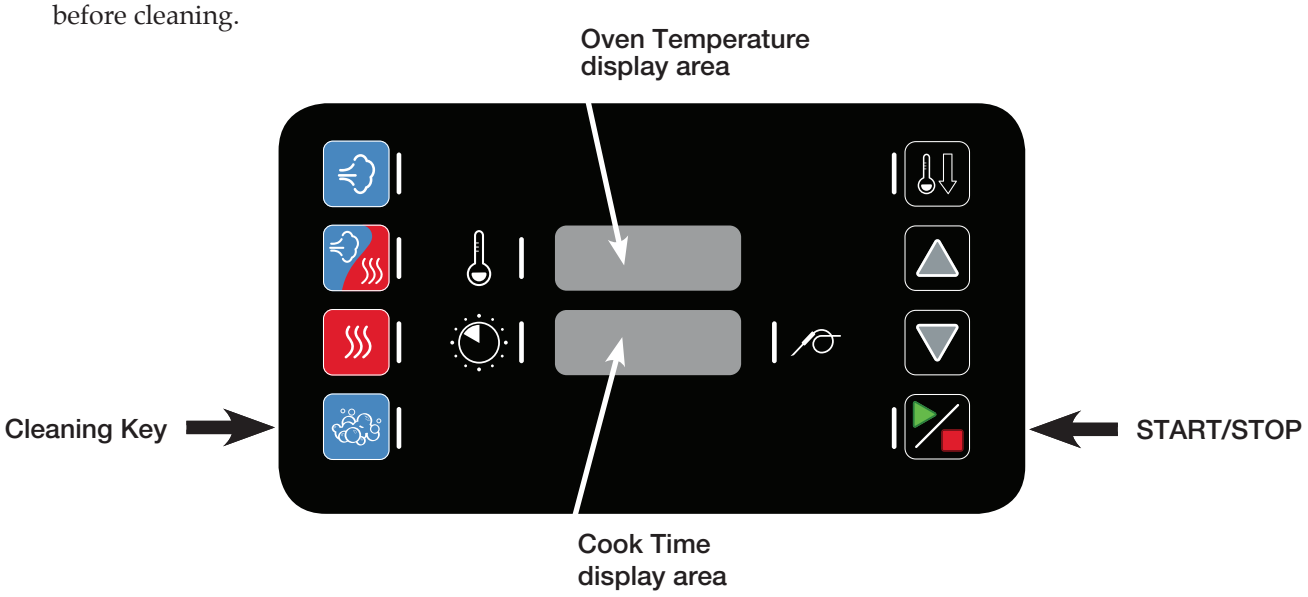
Close oven door.

Press key until the LED lights to begin cleaning cycle.

Cooking temperature display area will display "CLn".

Cooking time display area will display time remaining.

Oven beeps when cleaning is finished. Leave door slightly ajar.



CLEANING - **WITHOUT** COMBICLEAN PROGRAM

The CT Express Combitherm can be ordered without the CombiClean® option. Combitherm liquid spray cleaner should be used.

NOTE: If oven is too hot to safely clean, touch the cool down function key to activate.

Open the oven door to allow oven to cool to 200°F (93°C) before cleaning.

Side racks and shelves may remain inside oven during cleaning. Remove solid wastes from the bottom of the oven and the drain screen to prevent blockage.

Wearing safety glasses and rubber gloves, generously spray the interior oven surfaces with an even coating of Combitherm Liquid Oven Cleaner. Spray all built in components, shelves, and side racks. Spray both sides of the oven.

- Securely close the oven door and let the solution stand for a minimum of 10 minutes.
- Press Power on.
- Press Steam.
- Set Time for ten minutes.
- Oven beeps for 3 minutes at the end of the steam cycle or until the door is opened or until a cook mode button is pressed.
- Open door.
- Make certain to thoroughly rinse all surfaces to remove any cleaning solution residue. Use a non-abrasive cleaning pad for any problem areas.
- Replace the side racks and shelves.
- Wipe door gasket with a hot, soapy cloth.
  Wipe again with a clean rinse cloth.
- Leave door slightly ajar to air dry.

DANGER

AT NO TIME SHOULD THE INTERIOR OR EXTERIOR BE STEAM CLEANED, HOSED DOWN, OR FLOODED WITH WATER OR LIQUID SOLUTION OF ANY KIND. DO NOT USE WATER JET TO CLEAN.

SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF APPLIANCE IS FLOODED

ERROR CODES

Emergency Operation Mode C-2
Error Codes C-3

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EMERGENCY OPERATION MODE

If the oven malfunctions, an error code will appear in the display. In the event of an error, the Combitherm may be operated on a limited basis. Error conditions under which continued operation is possible are indicated by "Yes" in the chart on the next page. To operate the oven in the event of an error code:

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.

SELECT ONE OF THE AVAILABLE COOKING MODES.

SET THE OVEN CONTROLS AS IF OPERATING UNDER NORMAL CIRCUMSTANCES.

Depending on the error code involved, oven function, such as temperature range, may be limited.

PRESS THE START ICON TO BEGIN COOKING.

PRESS THE STOP ICON WHEN TIMER EXPIRES.

The Combitherm will return to normal operation when the oven fault is corrected.

EMERGENCY OPERATION MODE (CONTINUED)

ERROR CODES

When the oven malfunctions, an error code will appear in the display.

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Display Shows	Model		Mode			
		ES	ESG ESI	Steam	Combination	Convection	Retherm
E01	Low Water Boiler	Yes	No	No	No	To 365°F/185°C	No
E02	Control Temp High	Yes	Yes	No	No	No	No
E03	Fan Motor Error	Yes	Yes	No	No	No	No
E04	Fan Motor 2 Error	Yes	Yes	No	No	No	No
E11	Convection Temperature High	Yes	Yes	BOILER UNITS ONLY	No	No	No
E13	Boiler Temperature High	Yes	No	No	No	Yes	No
E15	Condenser Temperature High	Yes	Yes	No	No	To 356°F/180°C	No
E20	B11 Core Temperature Probe Single Point Fault - HACCP only	Yes	Yes	No	No	No	No
E21	N6 Cavity Probe Fault	Yes	Yes	BOILER UNITS ONLY	No	No	No
E22	B10 Core Temp Probe Fault	Yes	Yes	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY
E23	B4 Boiler Probe Fault	Yes	No	No	No	No	No
E24	B5 Bypass Probe Fault	Yes	Yes	No	No	Yes	No
E25	B3 Condenser Probe Fault	Yes	Yes	Yes	No	To 356°F/180°C	No
E26	N8 Boiler Safety Temperature Probe Fault	Yes	No	No	No	No	No
E27	Boiler Element Temperature High	Yes	No	No	No	Yes	No
E34	Steam Generator Drain Pump Fault	Yes	No	No	No	No	No
E36	Steam Temperature High	Yes	No	No	No	Yes	No
E51	No Water in Boiler	Yes	No	No	No	Yes	No
E53	Fan Motor High Temperature	Yes	Yes	No	No	No	No
E54	Fan Motor 2 High Temperature	Yes	Yes	No	No	No	No
E55	Vent Not Open	Yes	Yes	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)
E57	No Rinse Water	Yes	Yes	Yes	Yes	Yes	Yes
E93	Communication Error FROM Display Board	Yes	Yes	No	No	No	No
E94	Communication Error TO Display Board	Yes	Yes	No	No	No	No

ERROR CODES

This section is provided for the assistance of qualified technicians only and is not intended for use by untrained or unauthorized service personnel. If your Alto-Shaam® unit is not operating properly, check the following before calling your Authorized Alto-Shaam Service Agent:

☛ Check that unit is receiving power. Circuit breaker turned on?

Do not attempt to repair or service the oven beyond this point. Contact Alto-Shaam for the nearest authorized service agent. Repairs made by any other service agents without prior authorization by Alto-Shaam will void the warranty on the unit.

When the oven malfunctions, an error code will appear in the display.

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E01	Low Water Boiler	Low water level in boiler	— Water supply is shut off. — Low water pressure. — Generator drain cap/hose missing or leaking. — Generator drain pump is defective. — Generator drain pump elbow leaking. — Fill solenoid not energized. — Fill solenoid faulty. — Wiring or connection error at the solenoid or the relay board. — Water level probe connection/wiring error at probe or relay board. — Water level probe requires descaling and/or replacement.
E02	Control Temperature High	Relay board surface temperature too high	— Cooling fan(s) not being energized. — Cooling fan(s) faulty. — Wiring/connection error at cooling fan(s). — Faulty relay board.
E03	Convection Fan Motor Error	Convection fan motor failure	— Motor VFD not energized. — No input signal to VFD from relay board. — Motor VFD faulty, not outputting to motor after input signal received. — Motor fan wheel blocked/obstructed. — Connection/wiring error at VFD, motor, hall effect sensor, relay board. — Faulty motor.
E04	Lower Convection Fan Motor Error	Lower convection fan motor failure on 20•20 unit	— Motor VFD not energized. — No input signal to VFD from relay board. — Motor VFD faulty, not outputting to motor after input signal received. — Motor fan wheel blocked/obstructed. — Connection/wiring error at VFD, motor, hall effect sensor, relay board. — Faulty motor.

(CONTINUED ON NEXT PAGE)

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E11	Convection Temperature High	Oven cavity temperature N6 too high	— Convection element contactor stuck closed/on. — Faulty oven temperature probe connection at relay board. — Faulty N6 oven temperature probe. — Faulty relay board.
E13	Boiler Temperature High	Steam generator temperature too hot	— Immersion element is not submersed in water due to scale build up on the water level probe/ inside the tank. — Immersion element contactor stuck closed. — Faulty B4 steam generator temperature probe connection at relay board. — Faulty B4 temperature probe.
E15	Condensor Temperature High	Condensor water temperature too high	— Untreated water supply line is disconnected or shut off. — Cooling solenoid is not being energized when B3 probe is above set point. — Faulty B3 condensate temperature probe connection at relay board. — Faulty B3 condensate temperature probe.
E20	HACCP Only - B11 Core Temperature Probe Single Point Fault Error E20 is not shown in display. Instead a probe sign with "?" is shown as popup window. In case the customer cooks in time mode during first step and during second step switches to probe mode but has no probe in place, the error E20 will be shown in the error code list and HACCP list.	Single point core temperature probe defect or disconnected	— Probe not installed inside oven. — Faulty B11 Single Point Core Temperature probe receptacle connection at relay board. — Faulty B11 single point core temperature probe. — Debris buildup on probe receptacle pins inside of the oven.
E21	N6 Oven Cavity Temperature Probe Fault	N6 probe "open"	— Faulty N6 oven cavity temperature probe connection at relay board. — Faulty N6 oven temperature probe.
E22	B10 Core Temperature Probe Multipoint Fault	Multipoint core temperature probe defect or disconnected	— Faulty B10 multipoint core temperature probe connection at relay board. — Faulty B10 multipoint core temperature probe.
E23	B4 Boiler Probe Fault	B4 probe "open"	— Faulty B4 boiler temperature probe connection at relay board. — Faulty B4 boiler temperature probe.
E24	B5 Bypass Probe Fault	B5 probe "open"	— Faulty B5 steam bypass probe connection at relay board. — Faulty B5 steam bypass probe.
E25	B3 Condensor Probe Fault	B3 probe "open"	— Faulty B3 condensor probe connection at relay board. — Faulty B3 condensor probe.
E26	N8 Immersion Element Safety Probe Fault	N8 probe "open"	— Faulty N8 safety temperature probe connection at relay board. — Faulty N8 safety temperature probe.

(CONTINUED ON NEXT PAGE)

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E27	N8 Immersion Element Temperature Too High	Immersion element too hot	— Scale buildup inside steam generator and/or on water level probe. — Immersion element contactor stuck closed. — Faulty N8 safety temperature probe.
E34	Steam Generator Drain Pump Fault	Water level in steam generator does not drop during cleaning program	— Scale buildup inside the steam generator and/or water level probe. — Obstruction on inlet side of steam generator drain pump. — Boiler steam generator pump not being energized. — Steam generator drain pump defective.
E36	Steam Temperature High	Oven cavity temperature is too high when operating in steam mode or combination mode	— Water supply is not connected or shut off. — Low water pressure. — Y1 solenoid valve not energized on a call for steam. — Y1 solenoid faulty. — Flow restrictor obstructed. — Water injection pipe obstructed. — Steam bypass hose obstructed. — B5 steam bypass probe dirty or faulty.
E51	No Water In Boiler	Steam generator fill error	— Water supply is disconnected or shut off. — Low water pressure. — Boiler drain cap leaking or missing. — Boiler drain pump defective. — Drain pump elbow leaking. — Fill solenoid not energized. — Fill solenoid faulty. — Connection/wiring error at the solenoid or the relay board. — Water level probe connection/wiring error at probe or the relay board. — Water level probe requires descaling and/or replacement.
E53	Fan Motor High Temperature	Fan motor high limit	— Faulty motor high limit connection at relay board. — Obstructed fan wheel. — Faulty convection motor.
E54	Lower Fan Motor High Temperature (20-20 unit size only)	Fan motor high limit	— Faulty motor high limit connection at relay board. — Obstructed fan wheel. — Faulty convection motor.
E55	Vent Not Open	Browning valve does not open	— Browning valve vent motor not being energized. — Alignment issue between motor cam and vent motor safety switch (micro switch). — Faulty connection at vent motor, vent motor switch or relay board. — Fault vent valve safety switch (micro switch). — Faulty vent motor.

(CONTINUED ON NEXT PAGE)

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E57	No Rinse Water	During rinse no water flow is detected through solenoid valve	— Water supply is shut off. — Low water pressure. — Check wiring to all components mentioned below. — Flow switch is dirty or defective. — Double water solenoid valve defective (Y3.) — Relay board, high voltage, defective.
E92	Communication Error, RB Does Not Properly Respond	Communication error between display board and relay board	— Faulty ribbon cable connections between boards. — Faulty ribbon cable. — Relay board, low voltage, connector defective. — Display board connector defective.
E93	Communication Error, FROM Display Board	Communication error between display board and low voltage relay board	— Faulty ribbon cable connections between boards. — Faulty ribbon cable. — Relay board, low voltage, connector defective. — Display board connector defective.
E94	Communication Error, TO Display Board	Communication error between display board and low voltage relay board	— Faulty ribbon cable connections between boards. — Faulty ribbon cable. — Relay board, low voltage, connector defective. — Display board connector defective.
E98	RB is in Celsius and DB is in Fahrenheit	Change the unit configuration in the setup menu	— Control programming issue. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E99	RB is in Fahrenheit and DB is in Celsius	Change the unit configuration in the setup menu	— Control programming issue. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E100	DB version is not equal to RB version. Error generated by DB.	Software update may have failed.	— Perform software update. — Ribbon cable defective. — Faulty compact flash card. — Relay board, low voltage, connector defective. — Display board connector defective. — Software may need to be updated again.

(CONTINUED ON NEXT PAGE)

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E101	DB version is not equal to RB version. Error generated by RB.	Software update may have failed.	— Perform software update. — Ribbon cable defective. — Faulty compact flash card. — Relay board, low voltage, connector defective. — Display board connector defective. — Software may need to be updated again.
E102	Ventless Hood Fault — Filters Not Present	Filter safety switches are not properly activated.	— Grease and/or charcoal filter not installed. — Faulty filter switch. — Poor connection at safety switch or relay board.
E103	Ventless Hood Fault – Pressure Failure	Ventless hood operation failure.	— Hood power switch not turned to the on position. — Hood power switch defective. — Hood fan not operating. — Filter(s) clogged/need replacement. — Pressure switch tube plugged or disconnected. — Faulty pressure switch or connection error/failure. — Hood fan turning in the wrong direction.
E104	Ignition Failure	Attempt for ignition.	— Gas supply disconnected or turned off. — Gas supply pressure too low/too high. — Gas valve not being energized by ignition control. — Ignition control not creating a spark. — Faulty spark wire and/or igniter. — Faulty flame sense wire or sensing wire connection. — Faulty ignition control. — Blocked or obstructed flue pipe(s).
E105	Low Water Pressure	Low or no water pressure to oven.	— Water supply not connected or turned off. — Water pressure too low. — Solenoid valve not being energized. — Solenoid valve not opening. — Pressure switch faulty. — Poor connection at pressure switch and/or relay board.
E106	Cleaning Pump Fault	Cleaning pump is not running.	— Cleaning pump motor not being energized. — Cleaning pump faulty. — Poor connection at pump motor and/or relay board. — Hall effect sensor wiring/connection error/failure.
E107	Boiler Drain Pump Fault	Boiler drain pump is not running.	— Boiler drain pump motor not being energized. — Boiler drain pump faulty. — Poor connection at pump motor and/or relay board. — Hall effect sensor wiring/connection error/failure.

(CONTINUED ON NEXT PAGE)

TROUBLESHOOTING TREES

No Convection Heat (1 PH) D-2
No Convection Heat (208-240V, 3 PH) D-3
No Convection Heat (380-415V, 3 PH) D-4
No Convection Element Heat with Retherm Option (208-240V, 3 PH) D-5
No Convection Element Heat with Retherm Option (380-415V, 3 PH) D-6
No Steam Operation (1 PH) D-7
No Steam Operation (208-240V, 3 PH) D-8
No Steam Operation with Retherm option (208-240V, 3 PH) D-9
No Steam Operation (380-415V, 3 PH) D-10
No Steam Operation with Retherm option (380-415V, 3 PH) D-11
Too Much Steam Production D-12
No Smoke D-13
No Catalytic Converter Operation D-14
Two Speed Motor - No High Speed Motor Operation
- with motor protection switch D-15
- without motor protection switch D-16
Two Speed Motor - No Low Speed Motor Operation
- with motor protection switch D-17
- without motor protection switch D-18
Single Speed Motor - No Motor Operation
- with motor protection switch D-19
- without motor protection switch D-20
No Display/Control Not Powering On (Unit Dead). D-21
No Display/No Operation - Simple Control D-22
No Browning Vent Motor Operation D-23
No Oven Lamp D-24
No Condensate Injection (E15 Error Code). D-25
No Cleaning Operation D-26
No Cooling Fan Operation D-27
No Hood Operation D-28
Hood Door Safety Latch Not Closing D-29
Hood Door Safety Latch Not Releasing D-30
No Browning Bar Heat (280-240V, 3 PH) D-31
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K-77 Safety contactor Troubleshooting (380-415V Only) D-33

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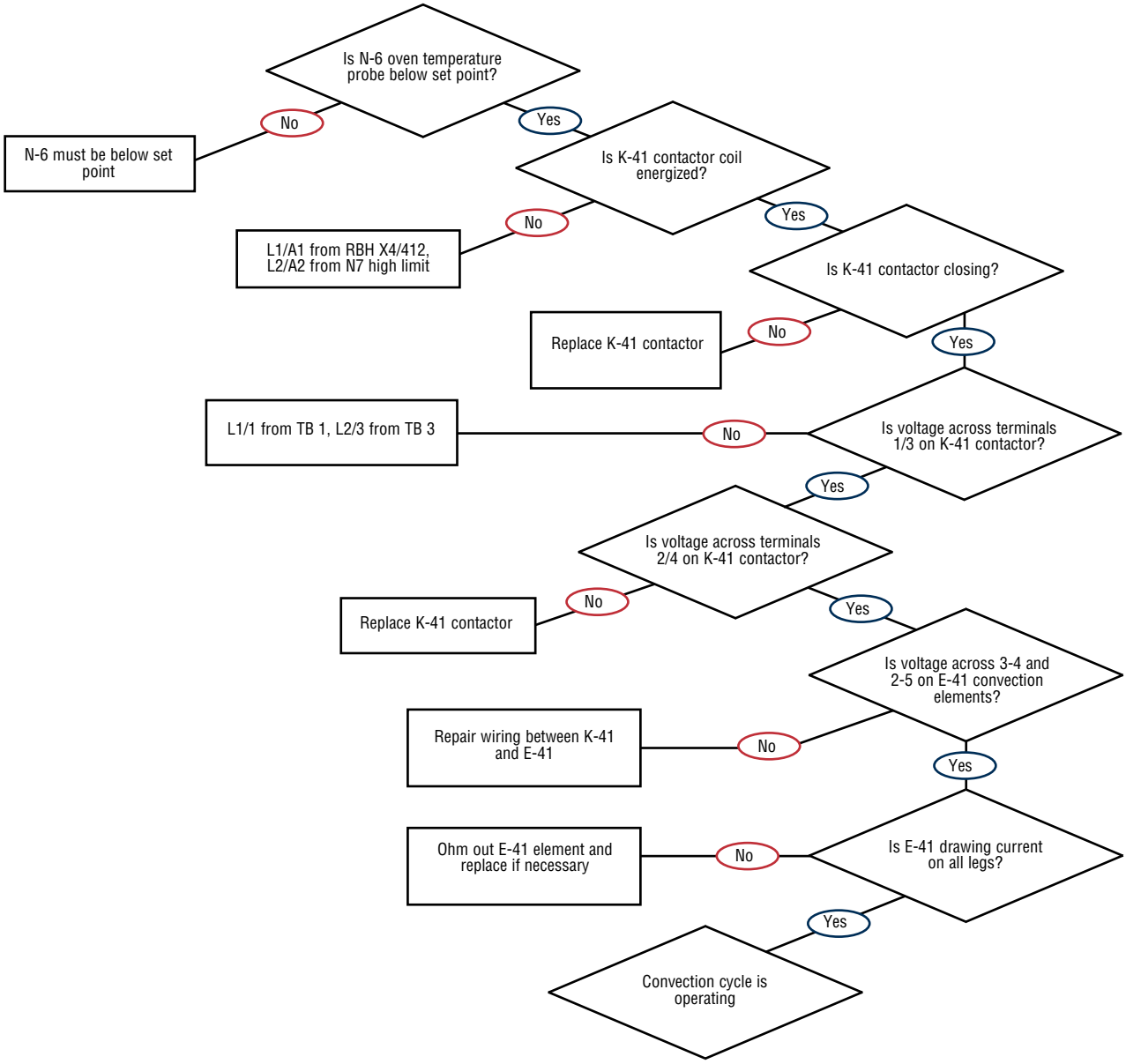
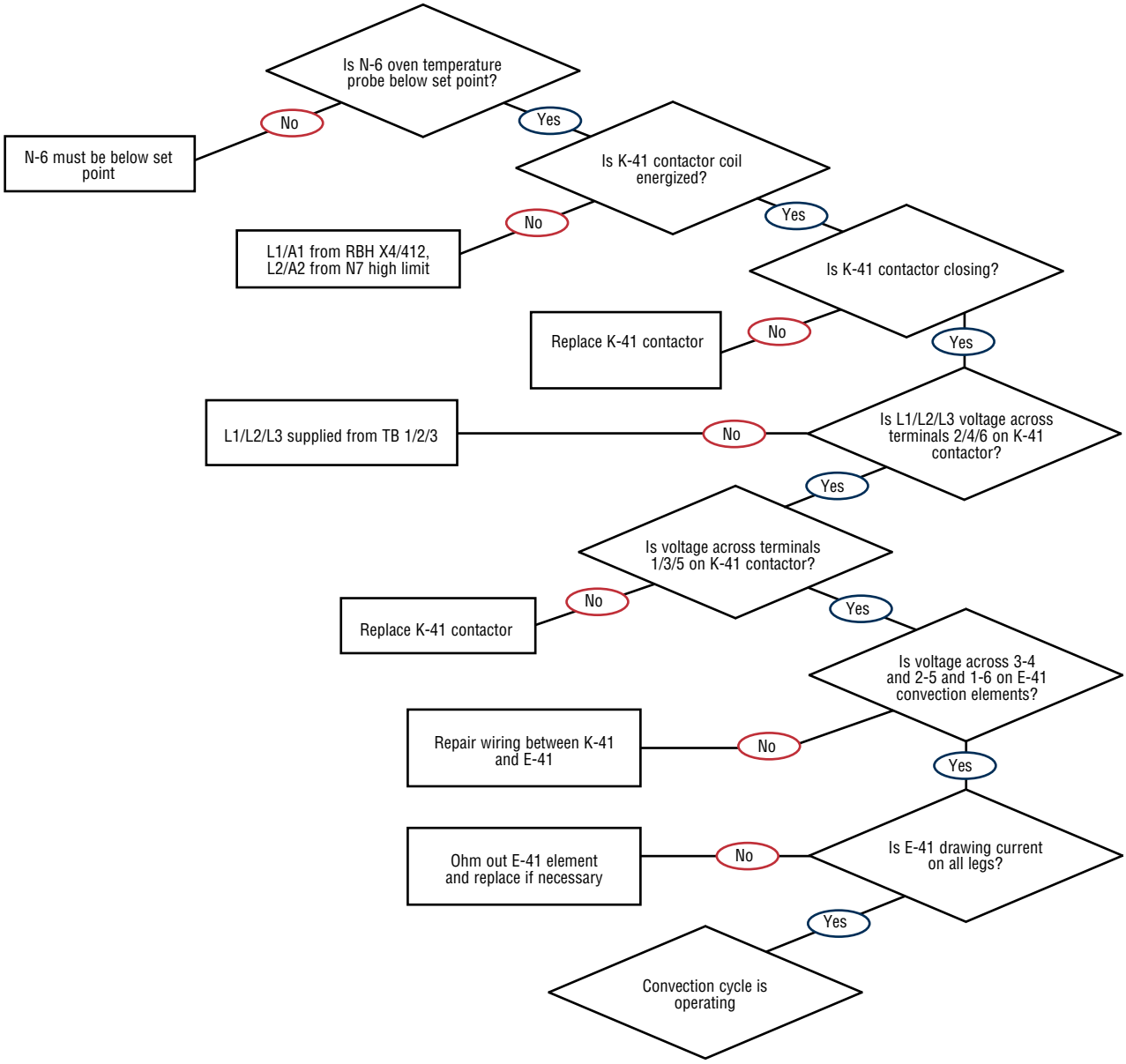
TROUBLESHOOTING TREES

No Convection Heat (1PH)

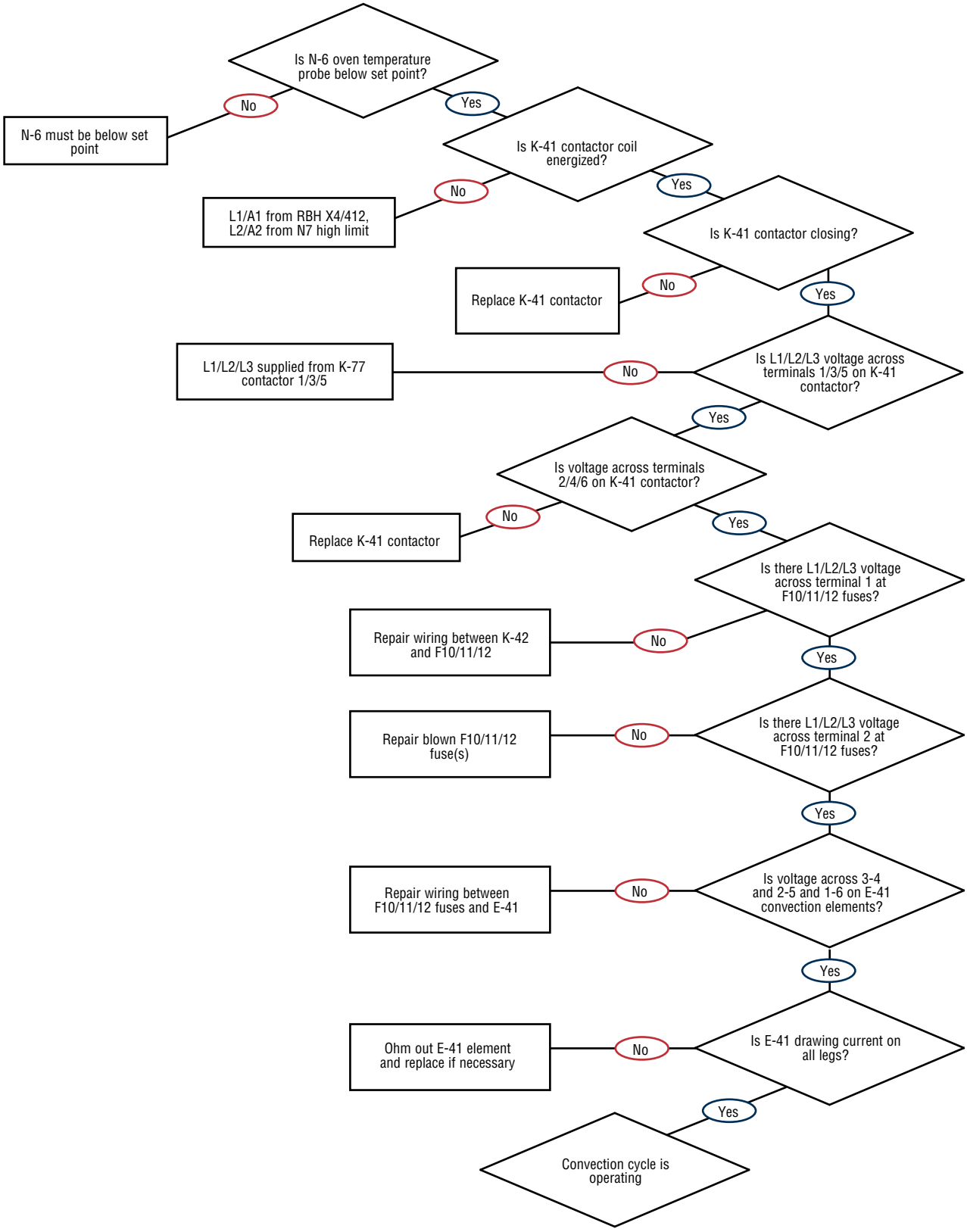


No Convection Heat (208-240V, 3PH)

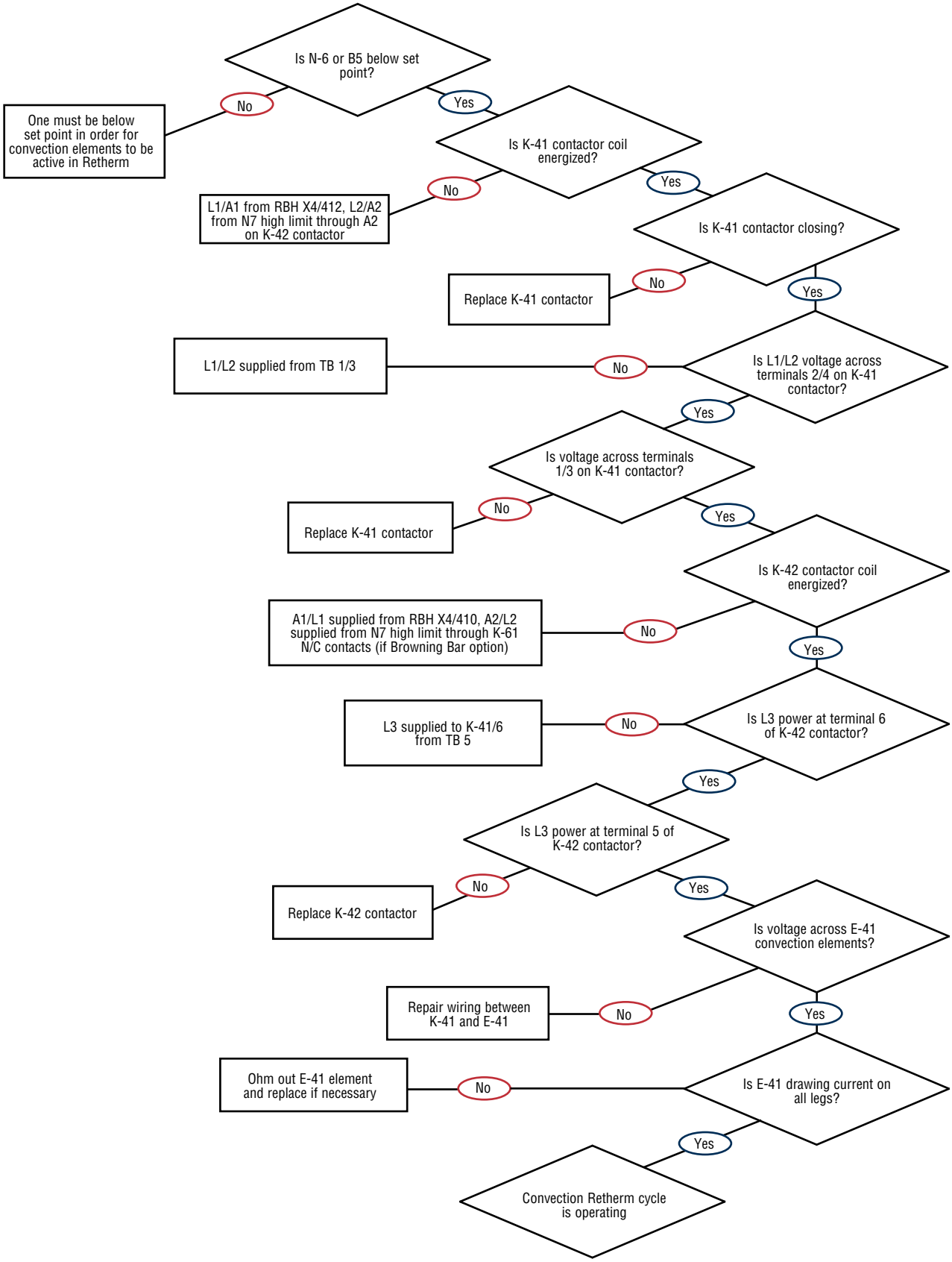


TROUBLESHOOTING TREES

No Convection Heat (380-415V, 3PH)

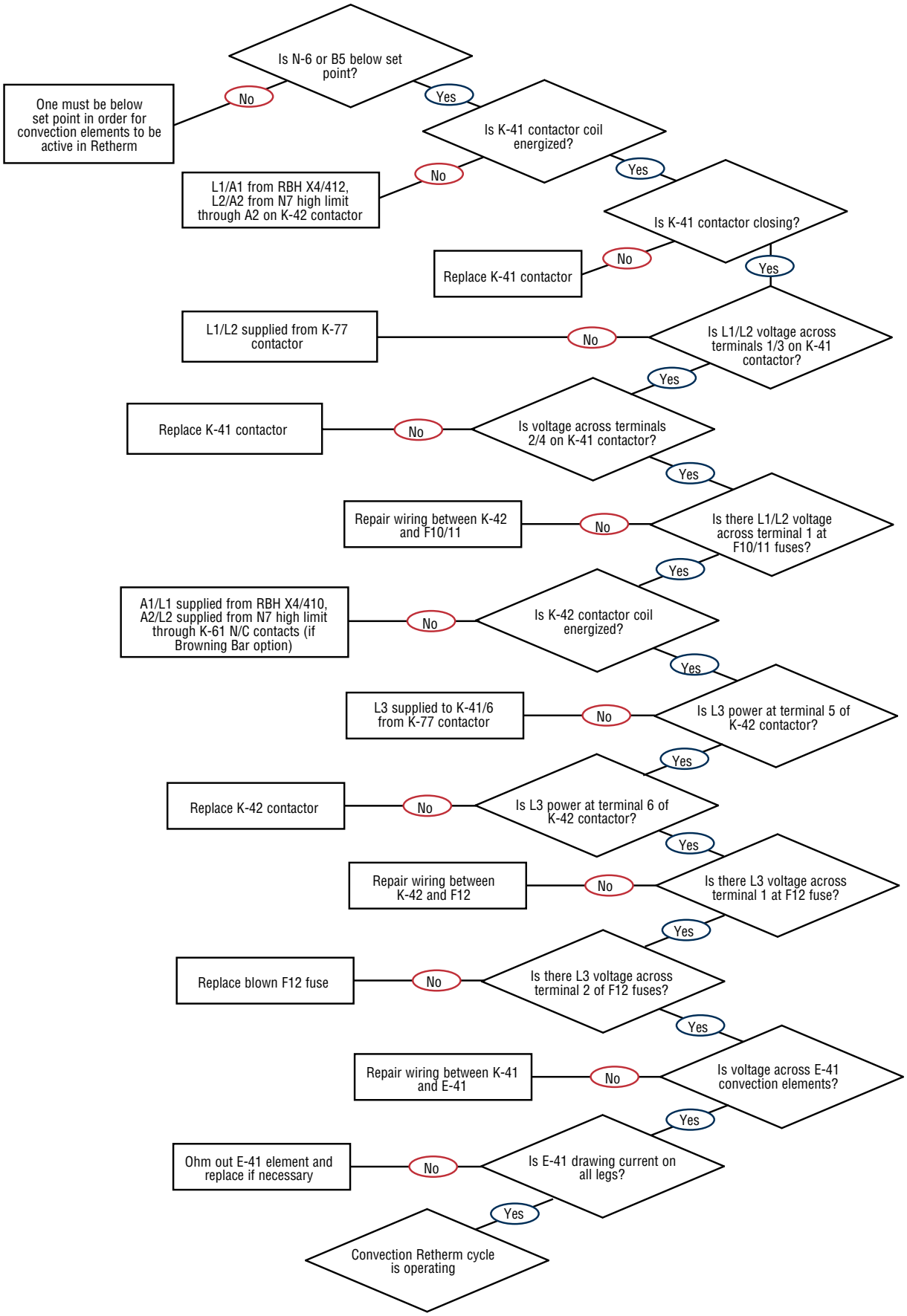

Is N-6 oven temperature probe below set point?
No
N-6 must be below set point
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
L1/L2/L3 supplied from K-77 contactor 1/3/5
No
Is L1/L2/L3 voltage across terminals 1/3/5 on K-41 contactor?
Yes
Is voltage across terminals 2/4/6 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is there L1/L2/L3 voltage across terminal 1 at F10/11/12 fuses?
No
Repair wiring between K-42 and F10/11/12
Yes
Is there L1/L2/L3 voltage across terminal 2 at F10/11/12 fuses?
No
Repair blown F10/11/12 fuse(s)
Yes
Is voltage across 3-4 and 2-5 and 1-6 on E-41 convection elements?
No
Repair wiring between F10/11/12 fuses and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Convection cycle is operating

No Convection Element Heat with Retherm Option (208-240V, 3PH)

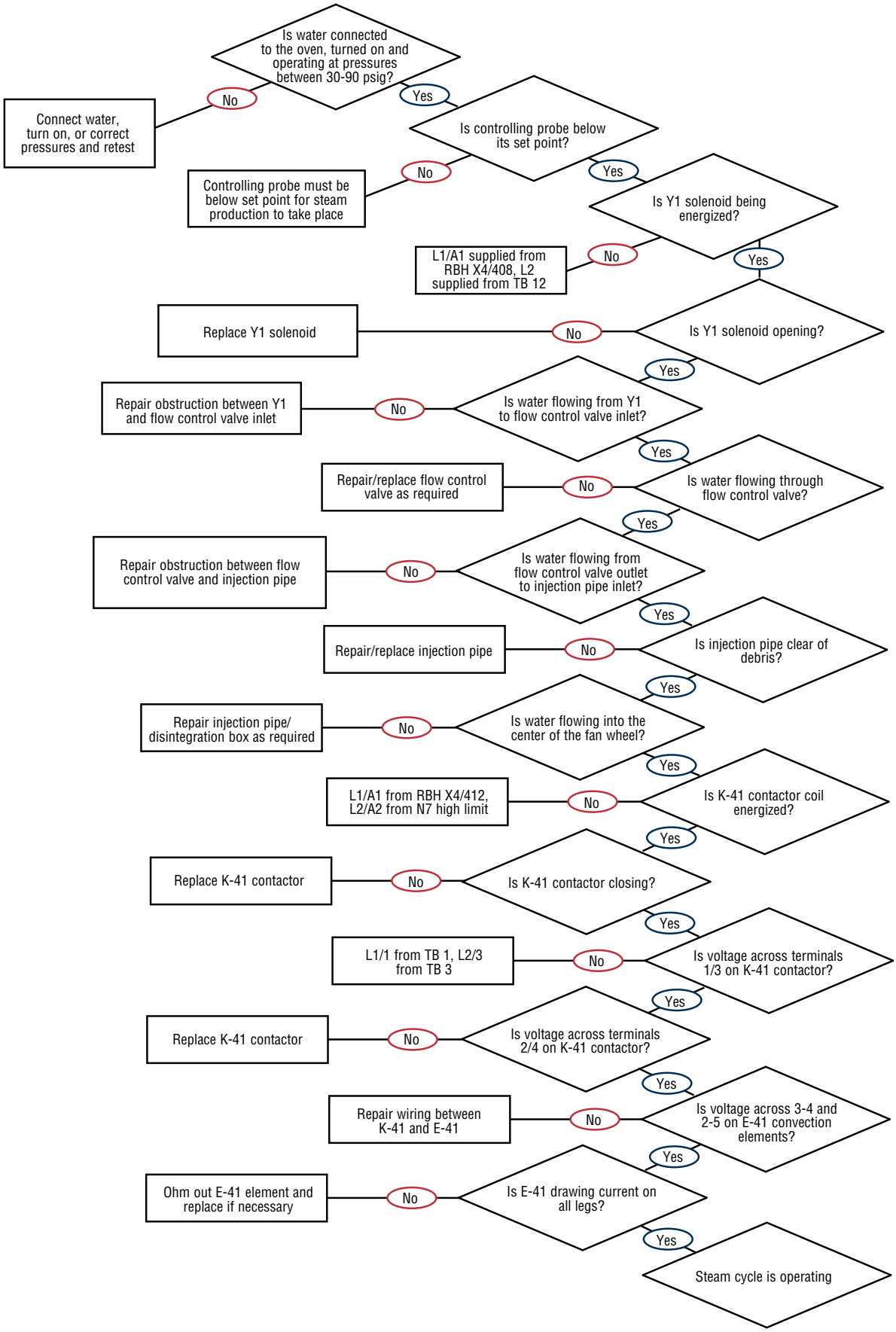

Is N-6 or B5 below set point?
No
One must be below set point in order for convection elements to be active in Retherm
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit through A2 on K-42 contactor
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is L1/L2 voltage across terminals 2/4 on K-41 contactor?
No
L1/L2 supplied from TB 1/3
Yes
Is voltage across terminals 1/3 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is K-42 contactor coil energized?
No
A1/L1 supplied from RBH X4/410, A2/L2 supplied from N7 high limit through K-61 N/C contacts (if Browning Bar option)
Yes
Is L3 power at terminal 6 of K-42 contactor?
No
L3 supplied to K-41/6 from TB 5
Yes
Is L3 power at terminal 5 of K-42 contactor?
No
Replace K-42 contactor
Yes
Is voltage across E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Convection Retherm cycle is operating

TROUBLESHOOTING TREES

No Convection Element Heat with Retherm Option (380-415V, 3PH)

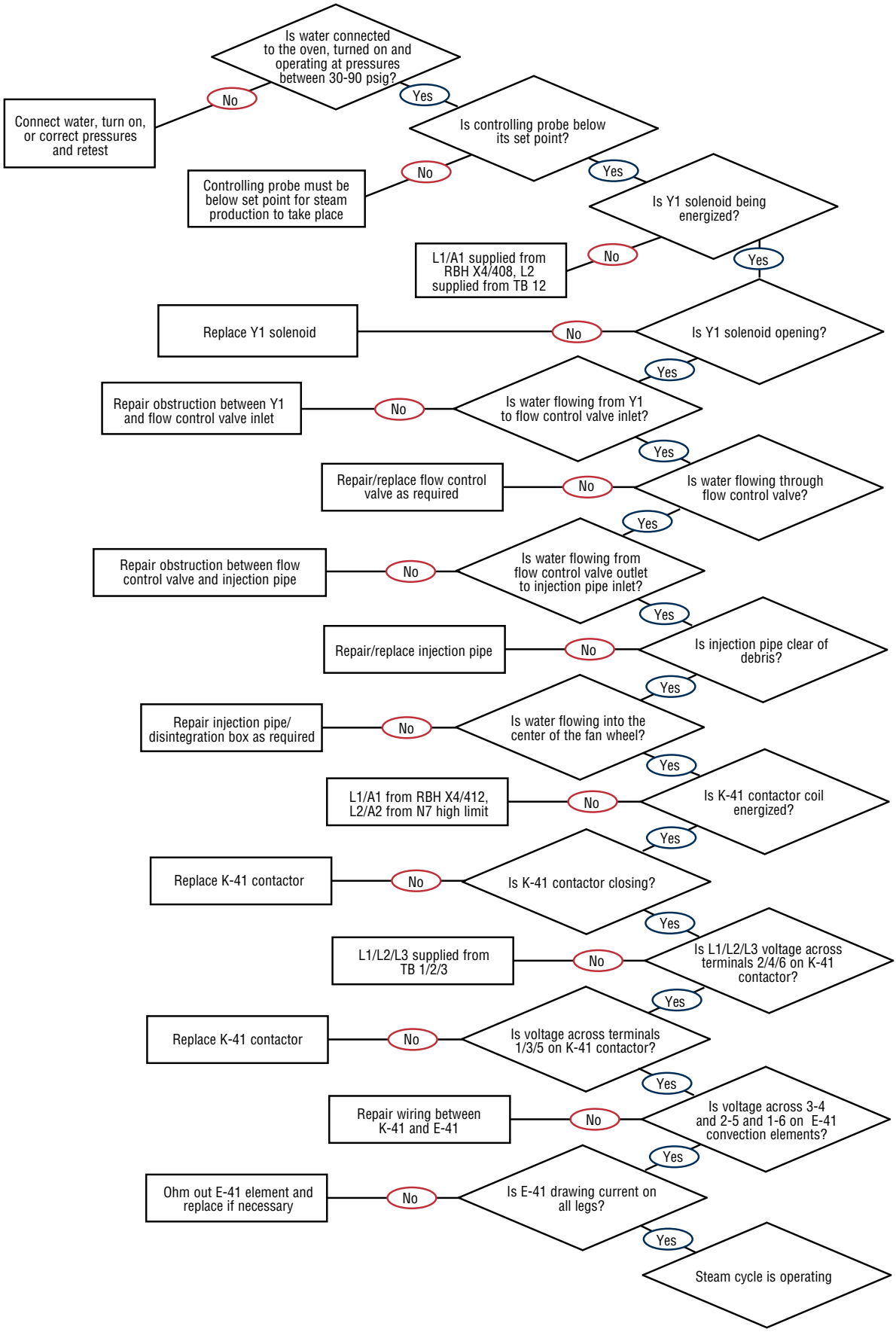

Is N-6 or B5 below set point?
No
One must be below set point in order for convection elements to be active in Retherm
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit through A2 on K-42 contactor
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
L1/L2 supplied from K-77 contactor
No
Is L1/L2 voltage across terminals 1/3 on K-41 contactor?
Yes
Replace K-41 contactor
No
Is voltage across terminals 2/4 on K-41 contactor?
Yes
Repair wiring between K-42 and F10/11
No
Is there L1/L2 voltage across terminal 1 at F10/11 fuses?
Yes
A1/L1 supplied from RBH X4/410, A2/L2 supplied from N7 high limit through K-61 N/C contacts (if Browning Bar option)
No
Is K-42 contactor coil energized?
Yes
L3 supplied to K-41/6 from K-77 contactor
No
Is L3 power at terminal 5 of K-42 contactor?
Yes
Replace K-42 contactor
No
Is L3 power at terminal 6 of K-42 contactor?
Yes
Repair wiring between K-42 and F12
No
Is there L3 voltage across terminal 1 at F12 fuse?
Yes
Replace blown F12 fuse
No
Is there L3 voltage across terminal 2 of F12 fuses?
Yes
Repair wiring between K-41 and E-41
No
Is voltage across E-41 convection elements?
Yes
Ohm out E-41 element and replace if necessary
No
Is E-41 drawing current on all legs?
Yes
Convection Retherm cycle is operating

No Steam Operation (1PH)

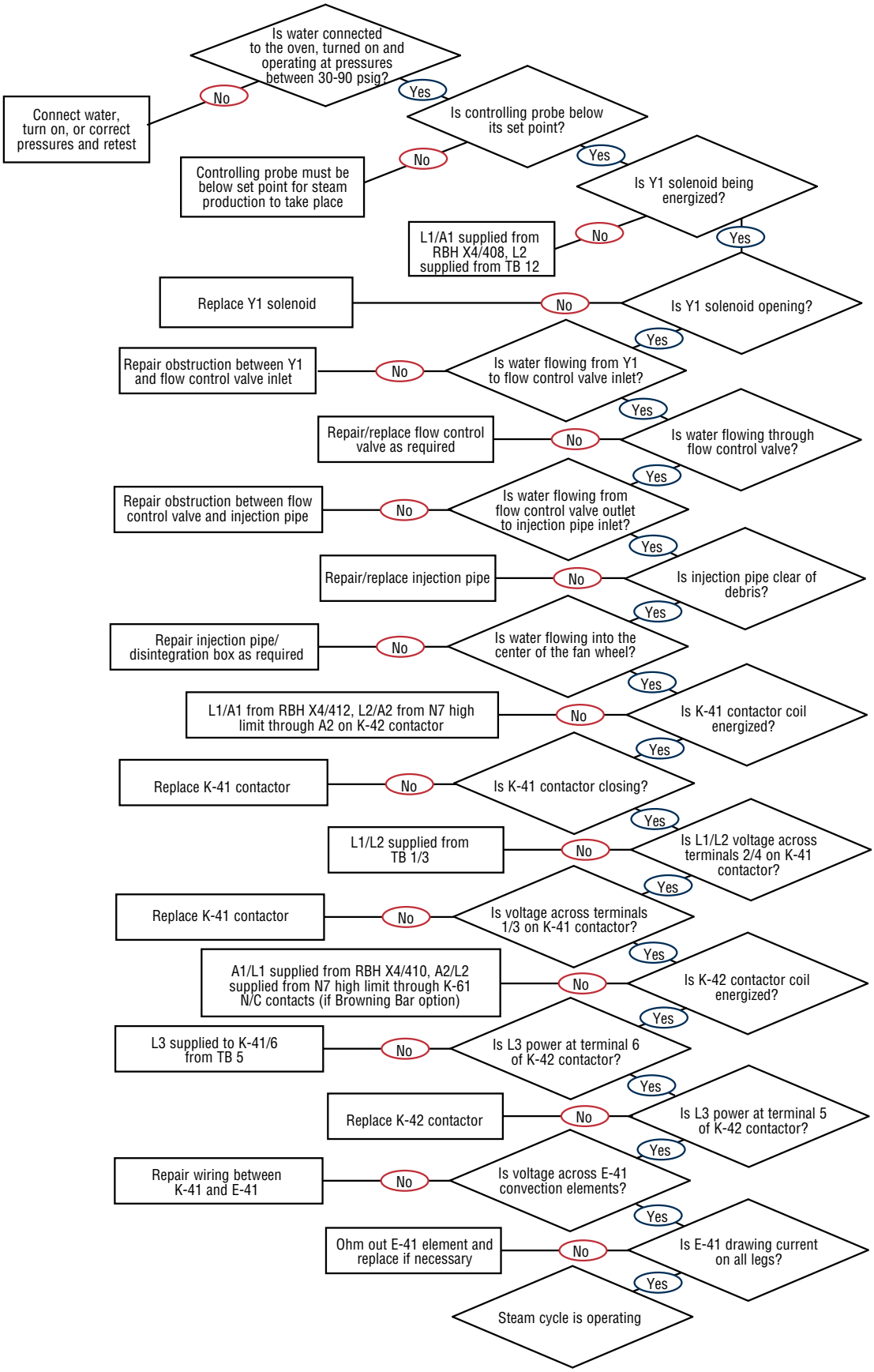

Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is controlling probe below its set point?
No
Controlling probe must be below set point for steam production to take place
Yes
Is Y1 solenoid being energized?
No
L1/A1 supplied from RBH X4/408, L2 supplied from TB 12
Yes
Is Y1 solenoid opening?
No
Replace Y1 solenoid
Yes
Is water flowing from Y1 to flow control valve inlet?
No
Repair obstruction between Y1 and flow control valve inlet
Yes
Is water flowing through flow control valve?
No
Repair/replace flow control valve as required
Yes
Is water flowing from flow control valve outlet to injection pipe inlet?
No
Repair obstruction between flow control valve and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is water flowing into the center of the fan wheel?
No
Repair injection pipe/ disintegration box as required
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is voltage across terminals 1/3 on K-41 contactor?
No
L1/1 from TB 1, L2/3 from TB 3
Yes
Is voltage across terminals 2/4 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is voltage across 3-4 and 2-5 on E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Steam cycle is operating

TROUBLESHOOTING TREES

No Steam Operation (208-240V, 3PH)

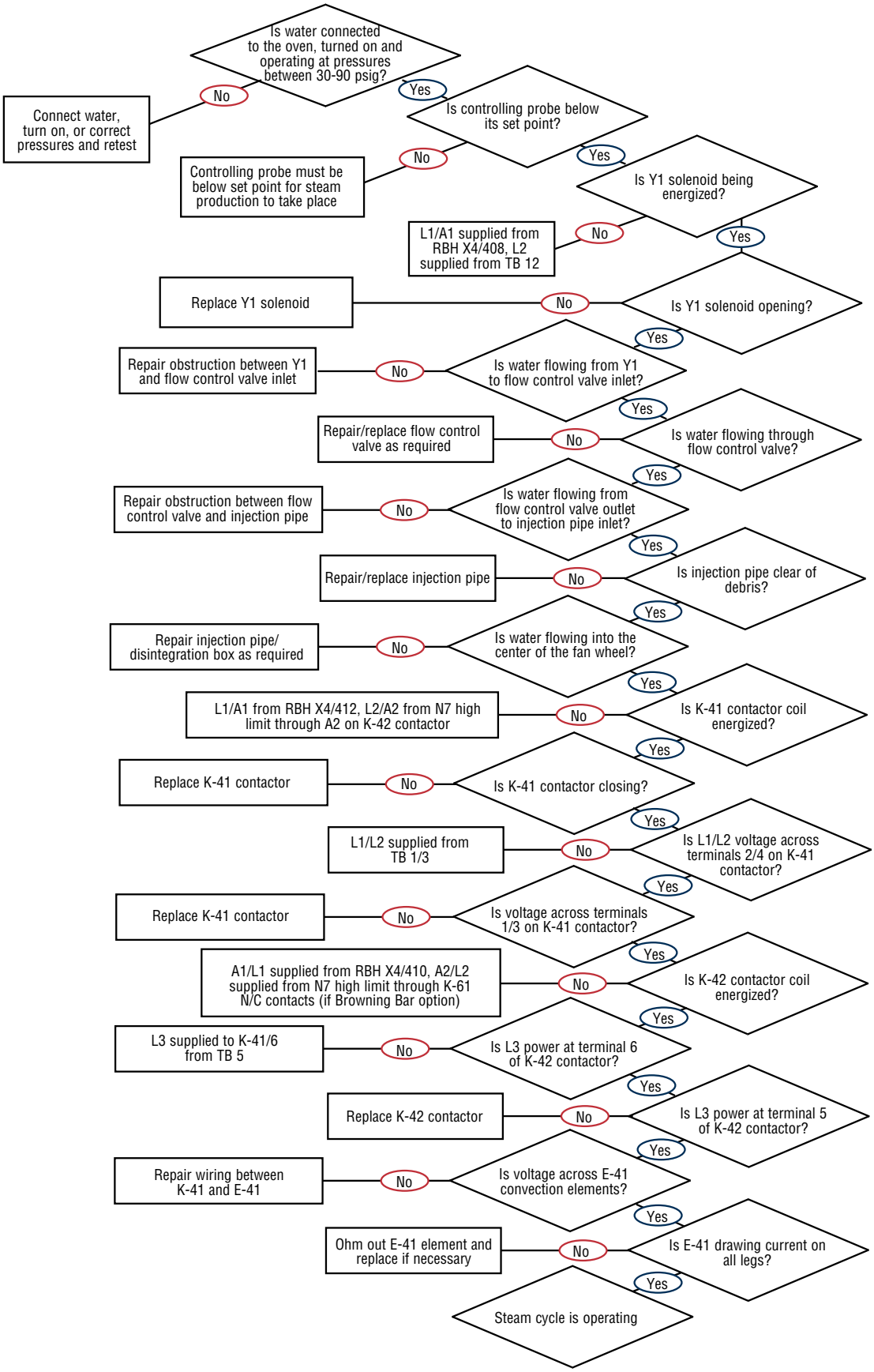

Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is controlling probe below its set point?
No
Controlling probe must be below set point for steam production to take place
Yes
Is Y1 solenoid being energized?
No
L1/A1 supplied from RBH X4/408, L2 supplied from TB 12
Yes
Is Y1 solenoid opening?
No
Replace Y1 solenoid
Yes
Is water flowing from Y1 to flow control valve inlet?
No
Repair obstruction between Y1 and flow control valve inlet
Yes
Is water flowing through flow control valve?
No
Repair/replace flow control valve as required
Yes
Is water flowing from flow control valve outlet to injection pipe inlet?
No
Repair obstruction between flow control valve and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is water flowing into the center of the fan wheel?
No
Repair injection pipe/ disintegration box as required
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is L1/L2/L3 voltage across terminals 2/4/6 on K-41 contactor?
No
L1/L2/L3 supplied from TB 1/2/3
Yes
Is voltage across terminals 1/3/5 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is voltage across 3-4 and 2-5 and 1-6 on E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Steam cycle is operating

No Steam Operation with Retherm Option (208-240V, 3PH)

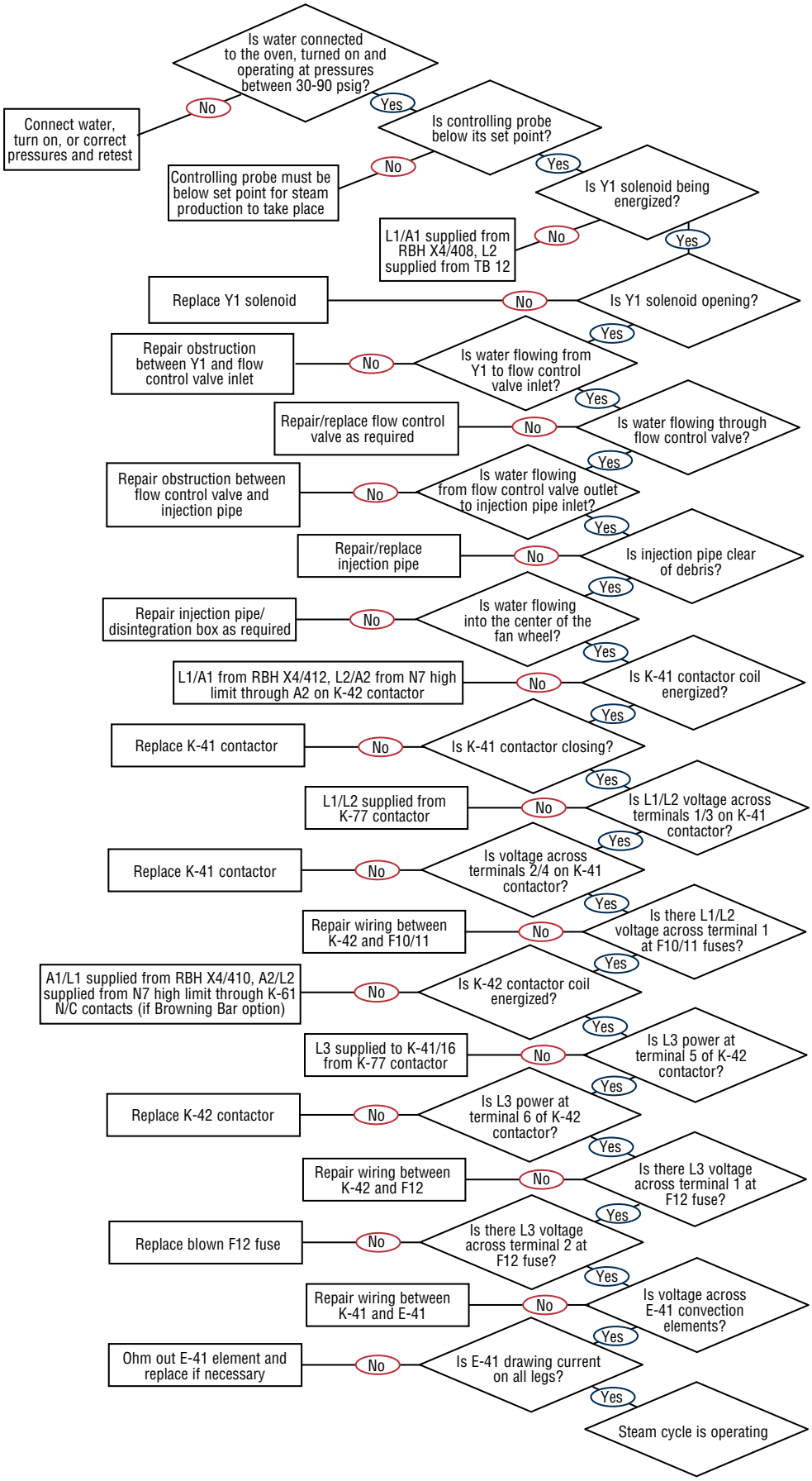

Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is controlling probe below its set point?
No
Controlling probe must be below set point for steam production to take place
Yes
Is Y1 solenoid being energized?
No
L1/A1 supplied from RBH X4/408, L2 supplied from TB 12
Yes
Is Y1 solenoid opening?
No
Replace Y1 solenoid
Yes
Is water flowing from Y1 to flow control valve inlet?
No
Repair obstruction between Y1 and flow control valve inlet
Yes
Is water flowing through flow control valve?
No
Repair/replace flow control valve as required
Yes
Is water flowing from flow control valve outlet to injection pipe inlet?
No
Repair obstruction between flow control valve and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is water flowing into the center of the fan wheel?
No
Repair injection pipe/ disintegration box as required
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit through A2 on K-42 contactor
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is L1/L2 voltage across terminals 2/4 on K-41 contactor?
No
L1/L2 supplied from TB 1/3
Yes
Is voltage across terminals 1/3 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is K-42 contactor coil energized?
No
A1/L1 supplied from RBH X4/410, A2/L2 supplied from N7 high limit through K-61 N/C contacts (if Browning Bar option)
Yes
Is L3 power at terminal 6 of K-42 contactor?
No
L3 supplied to K-41/6 from TB 5
Yes
Is L3 power at terminal 5 of K-42 contactor?
No
Replace K-42 contactor
Yes
Is voltage across E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Steam cycle is operating

TROUBLESHOOTING TREES

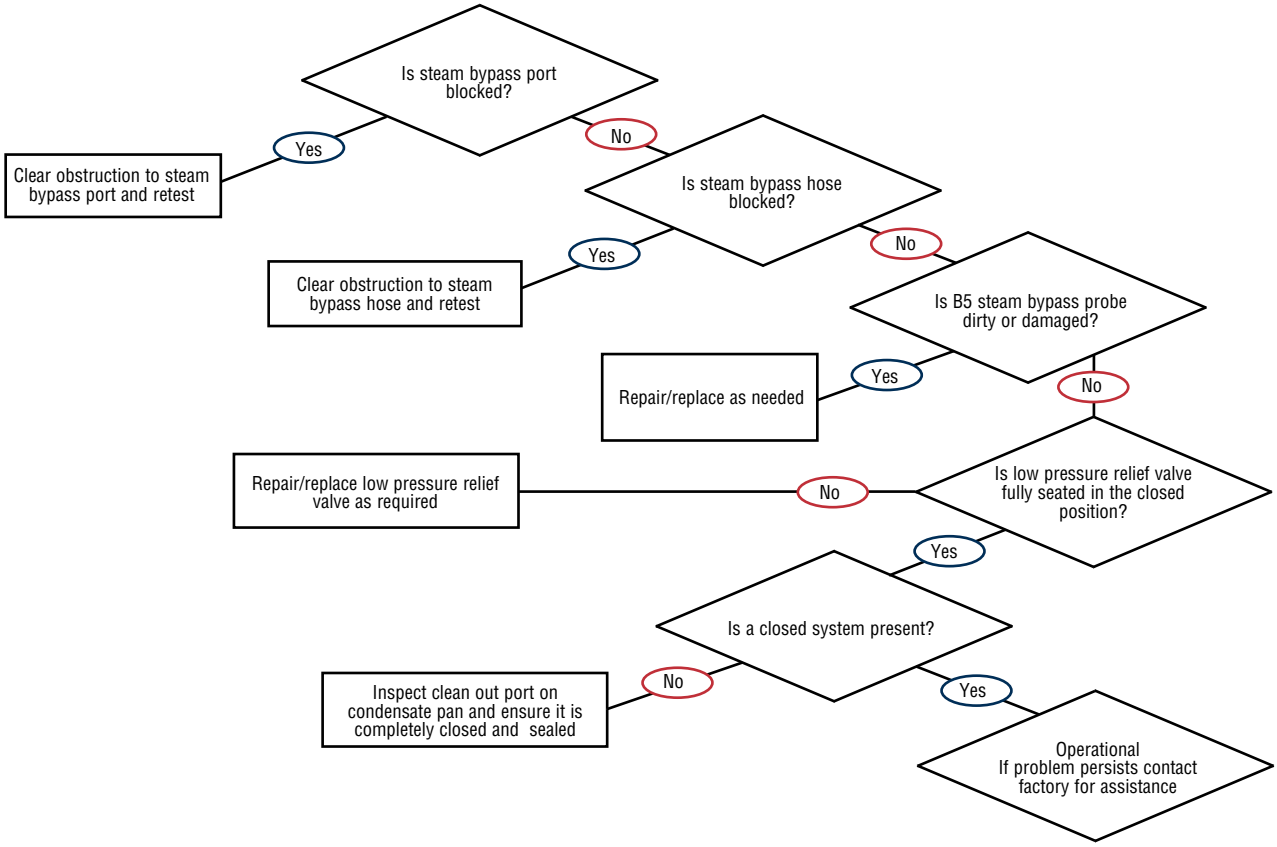
No Steam Operation (380-415V, 3PH)


Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is controlling probe below its set point?
No
Controlling probe must be below set point for steam production to take place
Yes
Is Y1 solenoid being energized?
No
L1/A1 supplied from RBH X4/408, L2 supplied from TB 12
Yes
Is Y1 solenoid opening?
No
Replace Y1 solenoid
Yes
Is water flowing from Y1 to flow control valve inlet?
No
Repair obstruction between Y1 and flow control valve inlet
Yes
Is water flowing through flow control valve?
No
Repair/replace flow control valve as required
Yes
Is water flowing from flow control valve outlet to injection pipe inlet?
No
Repair obstruction between flow control valve and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is water flowing into the center of the fan wheel?
No
Repair injection pipe/ disintegration box as required
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit through A2 on K-42 contactor
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is L1/L2 voltage across terminals 2/4 on K-41 contactor?
No
L1/L2 supplied from TB 1/3
Yes
Is voltage across terminals 1/3 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is K-42 contactor coil energized?
No
A1/L1 supplied from RBH X4/410, A2/L2 supplied from N7 high limit through K-61 N/C contacts (if Browning Bar option)
Yes
Is L3 power at terminal 6 of K-42 contactor?
No
L3 supplied to K-41/6 from TB 5
Yes
Is L3 power at terminal 5 of K-42 contactor?
No
Replace K-42 contactor
Yes
Is voltage across E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Steam cycle is operating

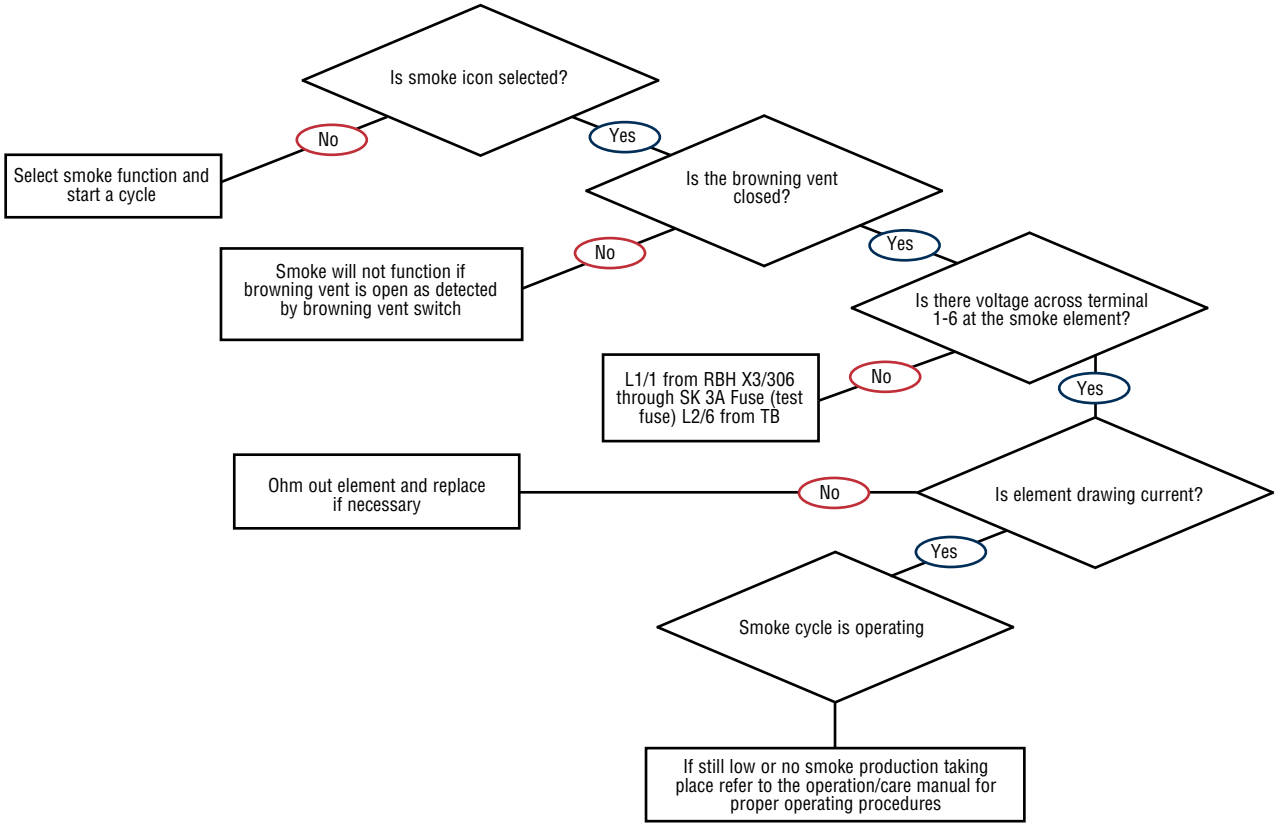
No Steam Operation with Retherm Option (380-415V, 3PH)


Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is controlling probe below its set point?
No
Controlling probe must be below set point for steam production to take place
Yes
Is Y1 solenoid being energized?
No
L1/A1 supplied from RBH X4/408, L2 supplied from TB 12
Yes
Is Y1 solenoid opening?
No
Replace Y1 solenoid
Yes
Is water flowing from Y1 to flow control valve inlet?
No
Repair obstruction between Y1 and flow control valve inlet
Yes
Is water flowing through flow control valve?
No
Repair/replace flow control valve as required
Yes
Is water flowing from flow control valve outlet to injection pipe inlet?
No
Repair obstruction between flow control valve and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is water flowing into the center of the fan wheel?
No
Repair injection pipe/ disintegration box as required
Yes
Is K-41 contactor coil energized?
No
L1/A1 from RBH X4/412, L2/A2 from N7 high limit through A2 on K-42 contactor
Yes
Is K-41 contactor closing?
No
Replace K-41 contactor
Yes
Is L1/L2 voltage across terminals 1/3 on K-41 contactor?
No
L1/L2 supplied from K-77 contactor
Yes
Is voltage across terminals 2/4 on K-41 contactor?
No
Replace K-41 contactor
Yes
Is there L1/L2 voltage across terminal 1 at F10/11 fuses?
No
Repair wiring between K-42 and F10/11
Yes
Is K-42 contactor coil energized?
No
A1/L1 supplied from RBH X4/410, A2/L2 supplied from N7 high limit through K-61 N/C contacts (if Browning Bar option)
Yes
Is L3 power at terminal 5 of K-42 contactor?
No
L3 supplied to K-41/16 from K-77 contactor
Yes
Is L3 power at terminal 6 of K-42 contactor?
No
Replace K-42 contactor
Yes
Is there L3 voltage across terminal 1 at F12 fuse?
No
Repair wiring between K-42 and F12
Yes
Is there L3 voltage across terminal 2 at F12 fuse?
No
Replace blown F12 fuse
Yes
Is voltage across E-41 convection elements?
No
Repair wiring between K-41 and E-41
Yes
Is E-41 drawing current on all legs?
No
Ohm out E-41 element and replace if necessary
Yes
Steam cycle is operating

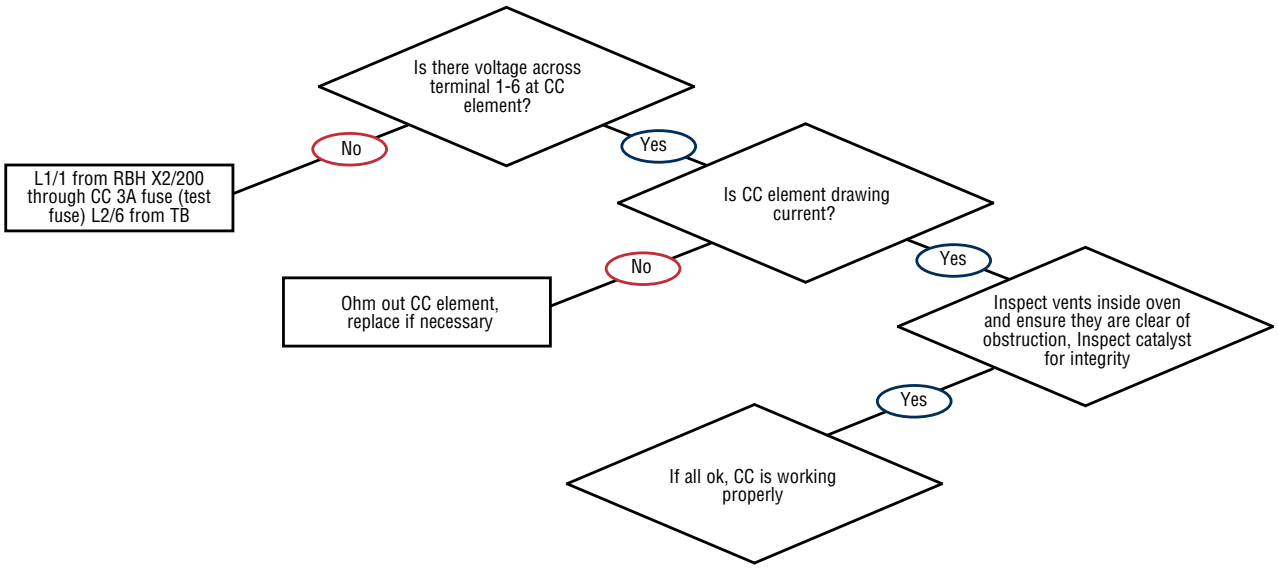
Too Much Steam Production


Is steam bypass port blocked?
Yes
Clear obstruction to steam bypass port and retest
No
Is steam bypass hose blocked?
Yes
Clear obstruction to steam bypass hose and retest
No
Is B5 steam bypass probe dirty or damaged?
Yes
Repair/replace as needed
No
Is low pressure relief valve fully seated in the closed position?
No
Repair/replace low pressure relief valve as required
Yes
Is a closed system present?
No
Inspect clean out port on condensate pan and ensure it is completely closed and sealed
Yes
Operational
If problem persists contact factory for assistance

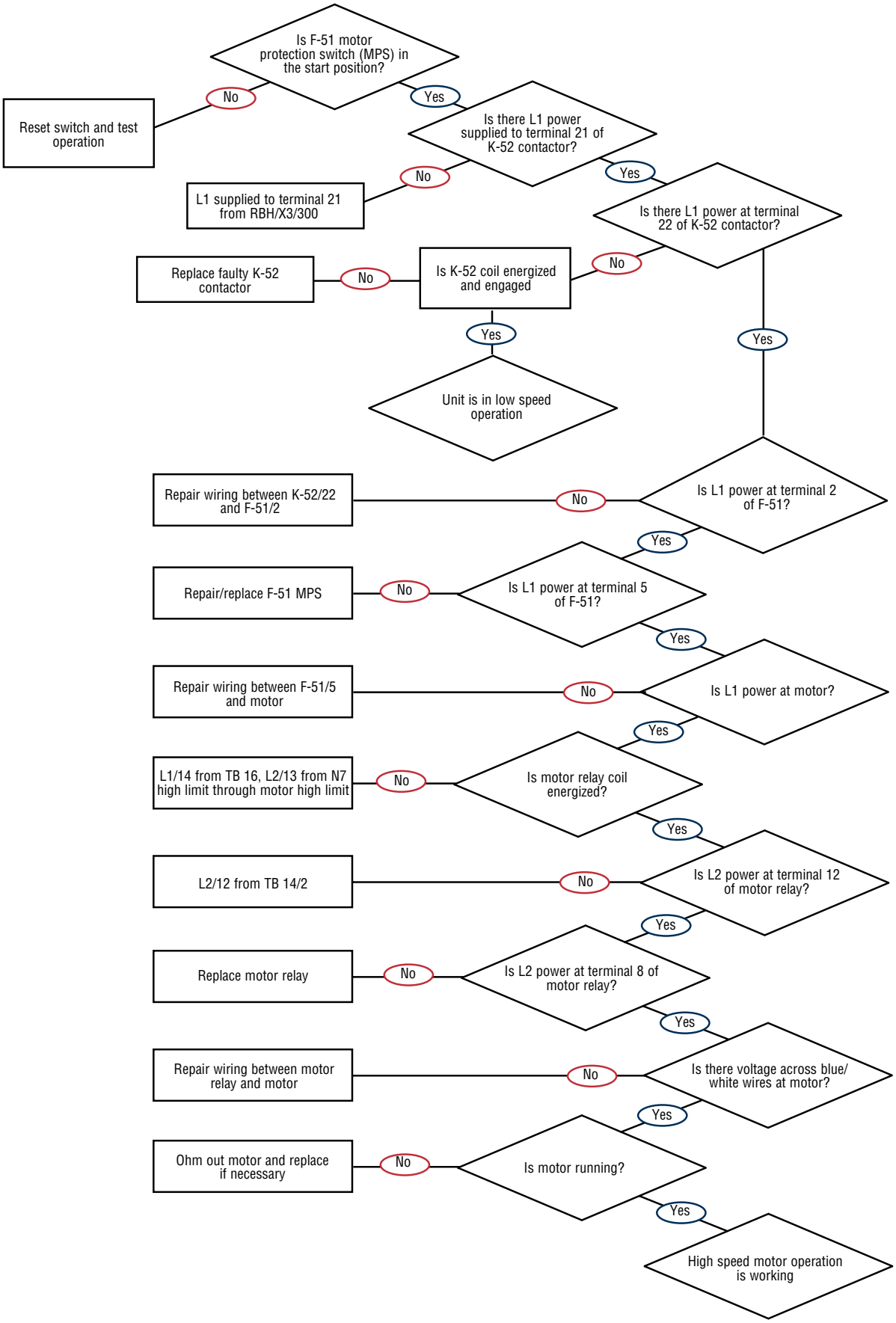
No Smoke


Is smoke icon selected?
No
Select smoke function and start a cycle
Yes
Is the browning vent closed?
No
Smoke will not function if browning vent is open as detected by browning vent switch
Yes
Is there voltage across terminal 1-6 at the smoke element?
No
L1/1 from RBH X3/306 through SK 3A Fuse (test fuse) L2/6 from TB
Yes
Is element drawing current?
No
Ohm out element and replace if necessary
Yes
Smoke cycle is operating
If still low or no smoke production taking place refer to the operation/care manual for proper operating procedures

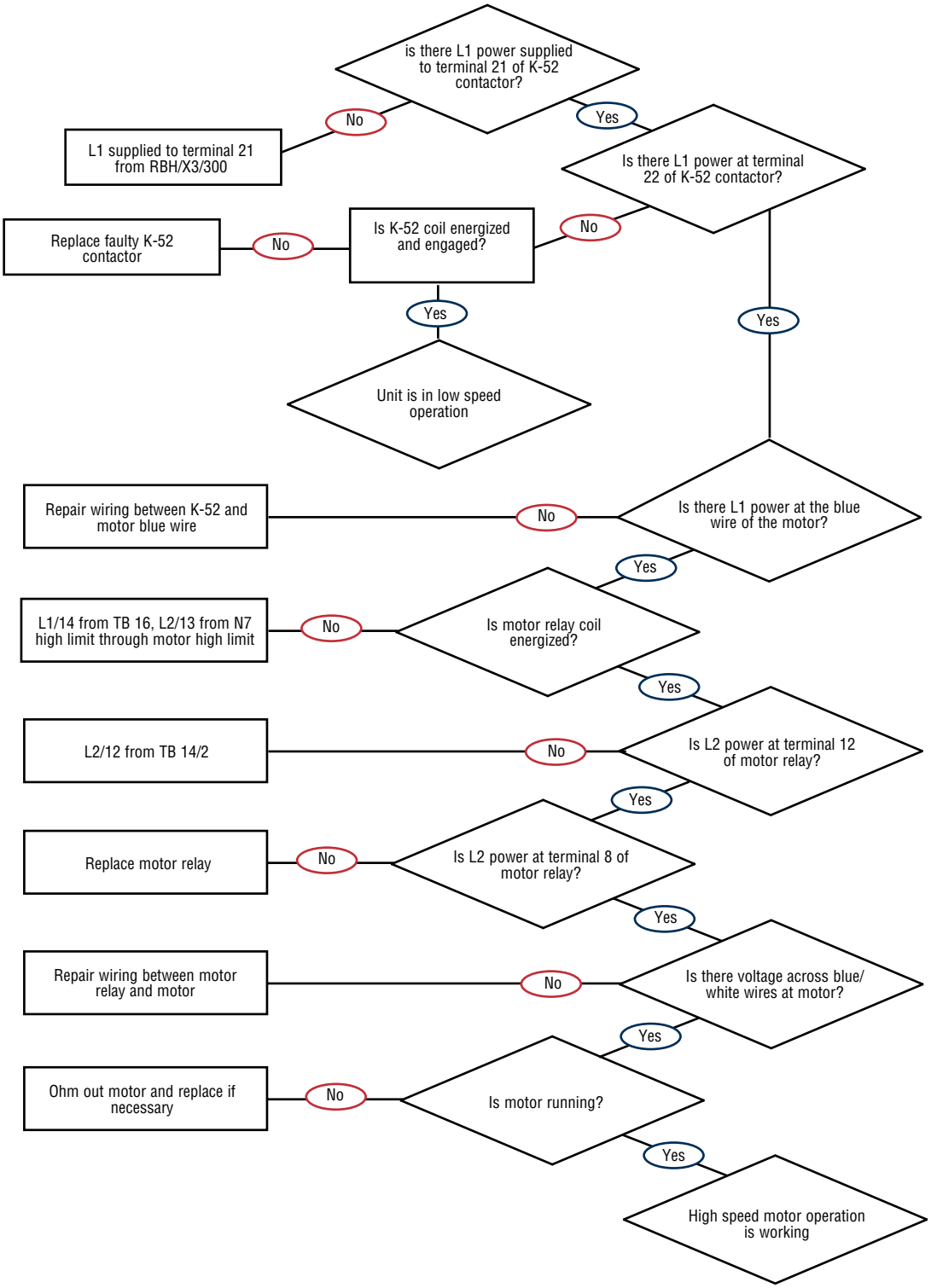
No Catalytic Converter (CC) Operation


Is there voltage across terminal 1-6 at CC element?
No
L1/1 from RBH X2/200 through CC 3A fuse (test fuse) L2/6 from TB
Yes
Is CC element drawing current?
No
Ohm out CC element, replace if necessary
Yes
Inspect vents inside oven and ensure they are clear of obstruction, Inspect catalyst for integrity
Yes
If all ok, CC is working properly

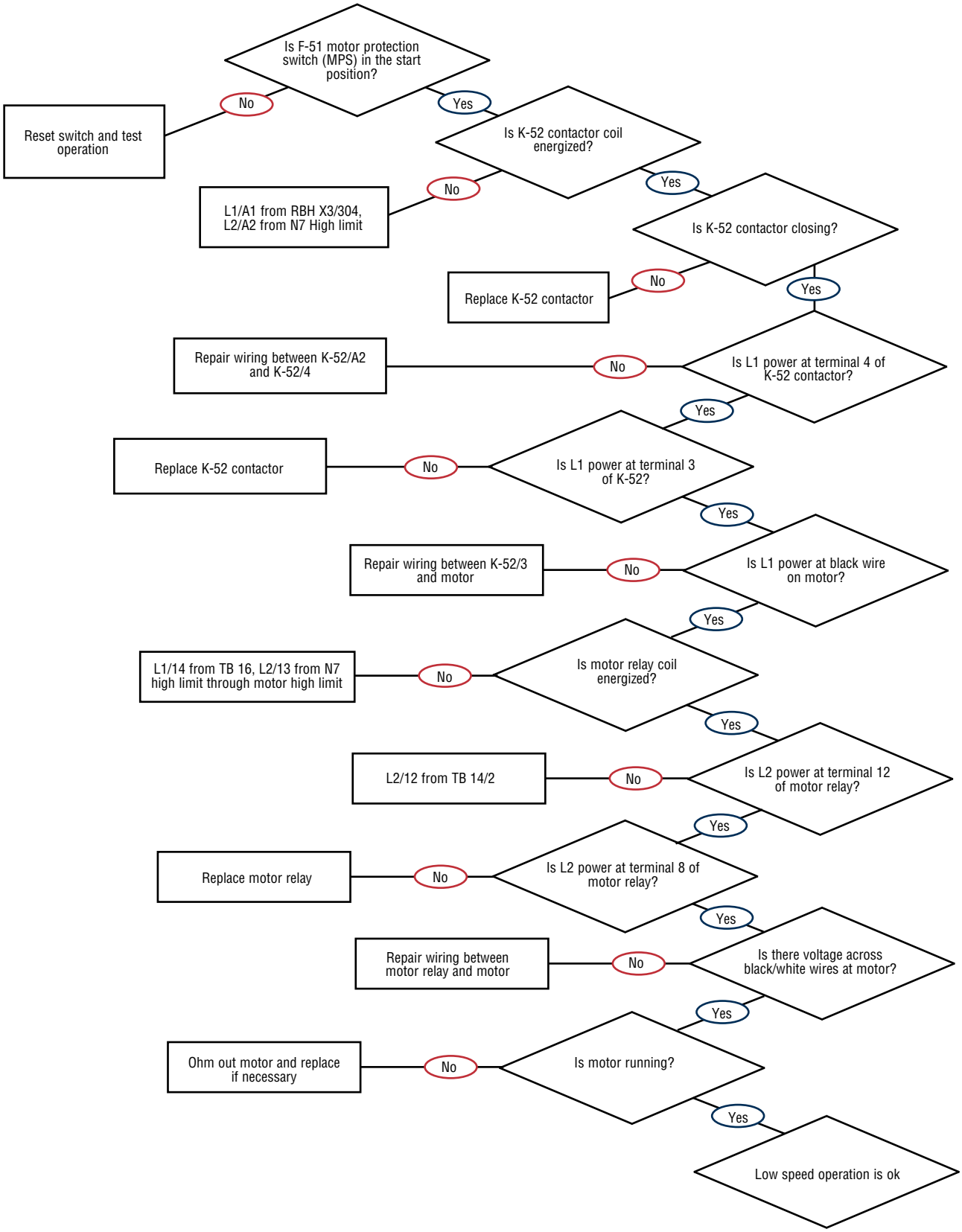
Two Speed Motor - No High Speed Motor Operation (with motor protection switch)



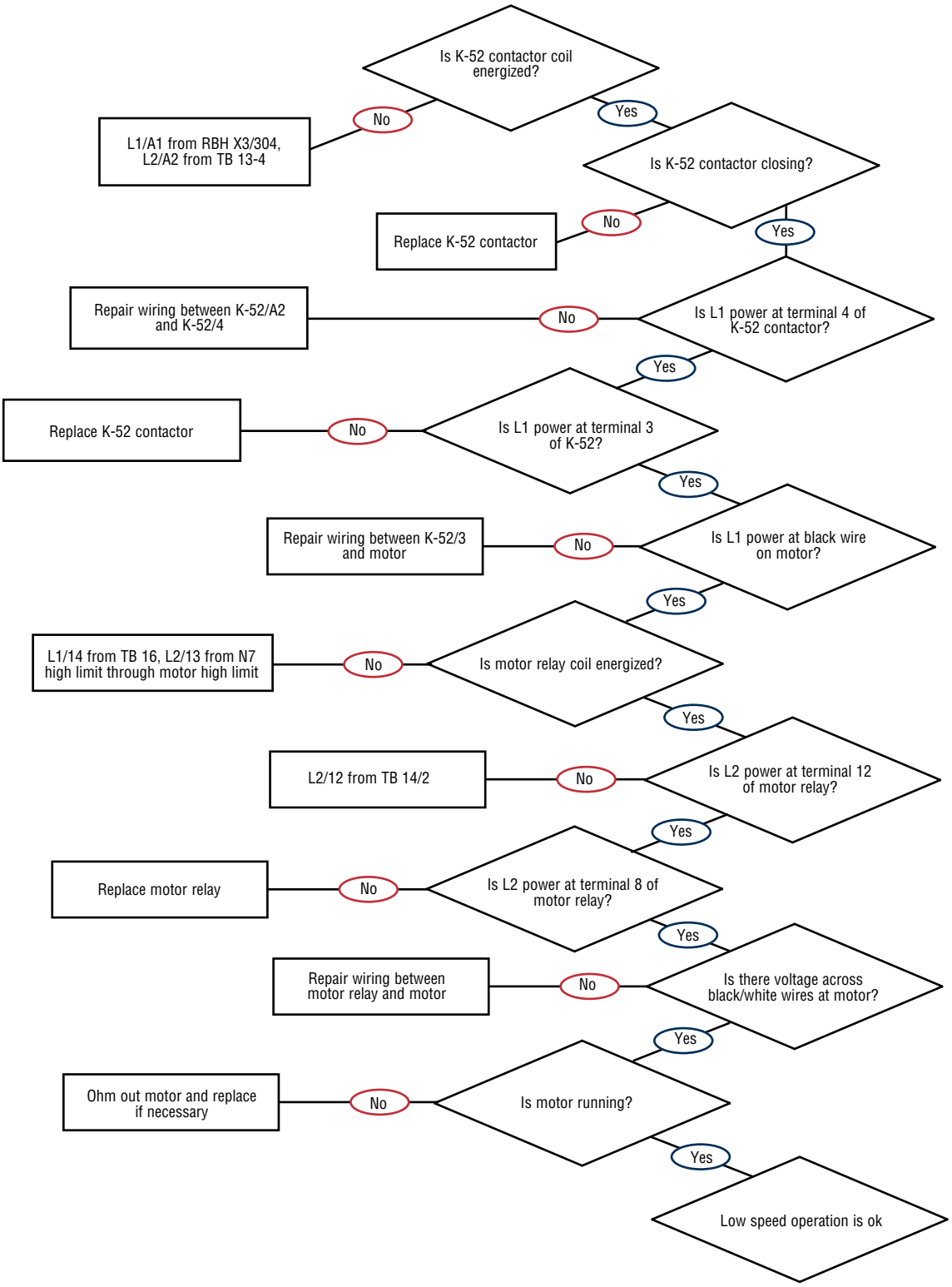
Two Speed Motor - No High Speed Motor Operation (without motor protection switch)


is there L1 power supplied to terminal 21 of K-52 contactor?
No
Yes
L1 supplied to terminal 21 from RBH/X3/300
Is there L1 power at terminal 22 of K-52 contactor?
Replace faulty K-52 contactor
No
Is K-52 coil energized and engaged?
No
Yes
Yes
Unit is in low speed operation
Repair wiring between K-52 and motor blue wire
No
Is there L1 power at the blue wire of the motor?
Yes
L1/14 from TB 16, L2/13 from N7 high limit through motor high limit
No
Is motor relay coil energized?
Yes
L2/12 from TB 14/2
No
Is L2 power at terminal 12 of motor relay?
Yes
Replace motor relay
No
Is L2 power at terminal 8 of motor relay?
Yes
Repair wiring between motor relay and motor
No
Is there voltage across blue/ white wires at motor?
Yes
Ohm out motor and replace if necessary
No
Is motor running?
Yes
High speed motor operation is working

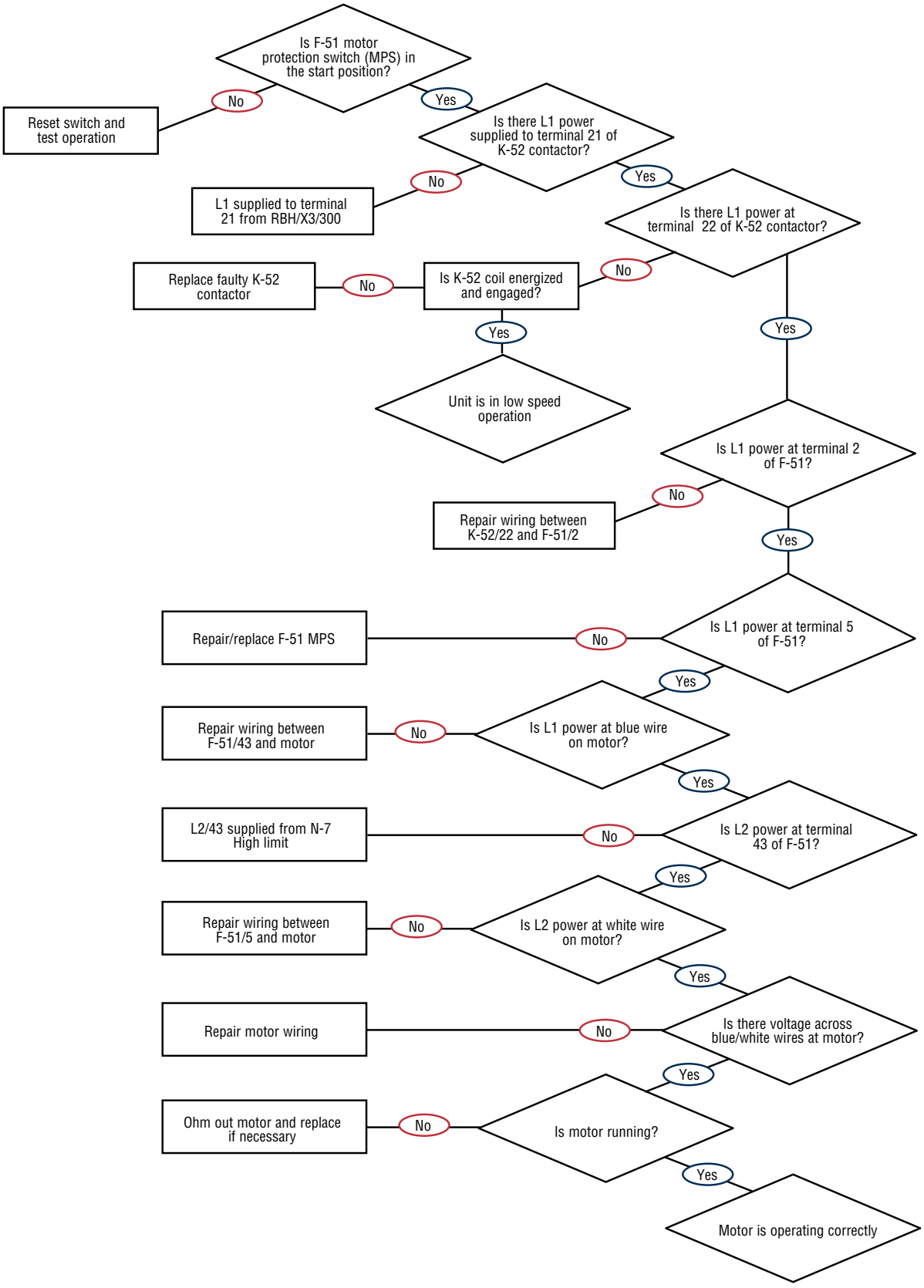
Two Speed Motor - No Low Speed Motor Operation (with motor protection switch)



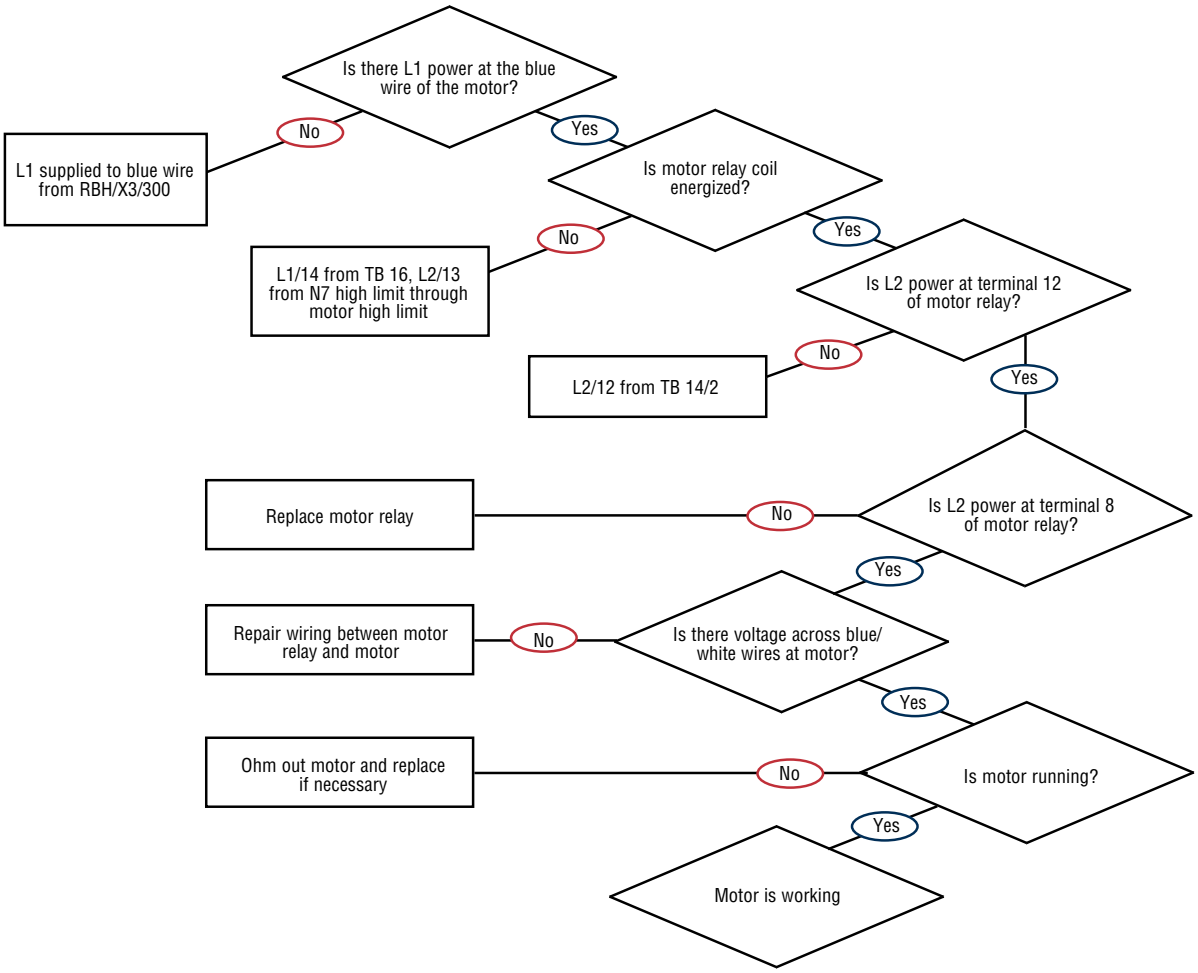
Two Speed Motor - No Low Speed Motor Operation (without motor protection switch)



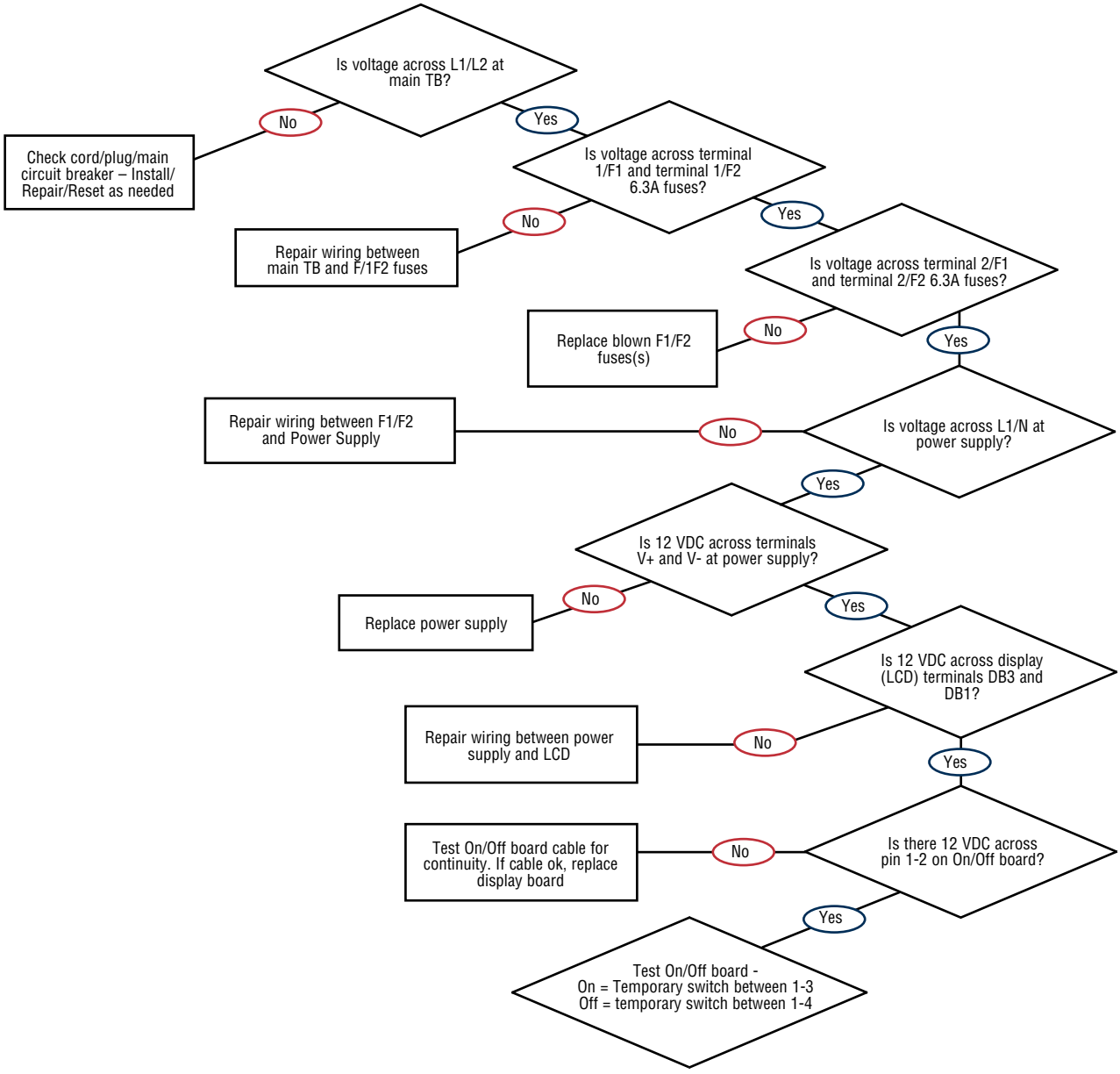
Single Speed Motor - No Motor Operation (with motor protection switch)



Single Speed Motor - No Motor Operation (without motor protection switch)

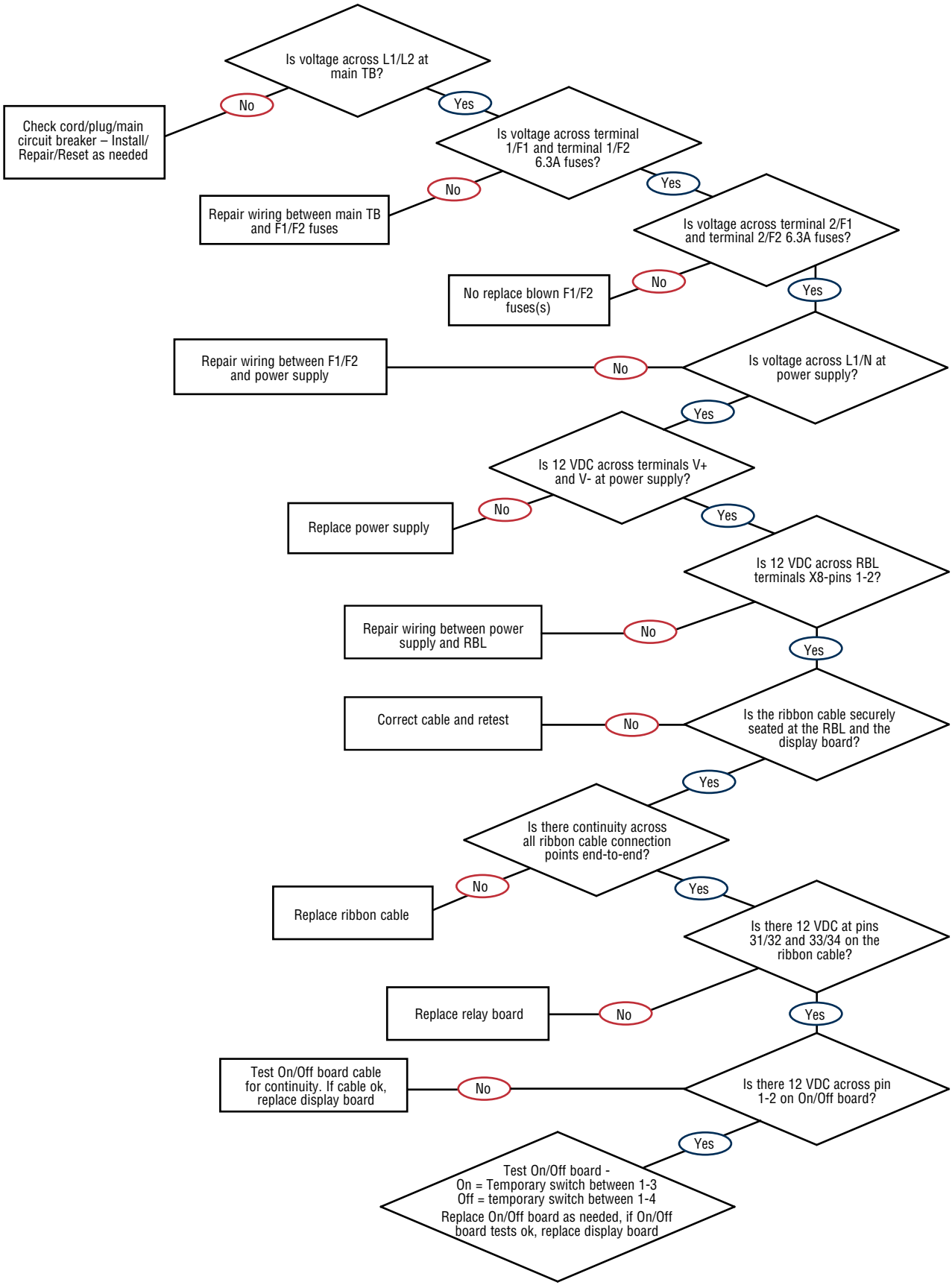

Is there L1 power at the blue wire of the motor?
No
L1 supplied to blue wire from RBH/X3/300
Yes
Is motor relay coil energized?
No
L1/14 from TB 16, L2/13 from N7 high limit through motor high limit
Yes
Is L2 power at terminal 12 of motor relay?
No
L2/12 from TB 14/2
Yes
Is L2 power at terminal 8 of motor relay?
No
Replace motor relay
Yes
Is there voltage across blue/ white wires at motor?
No
Repair wiring between motor relay and motor
Yes
Is motor running?
No
Ohm out motor and replace if necessary
Yes
Motor is working

No Display/Control not powering on (Unit Dead)

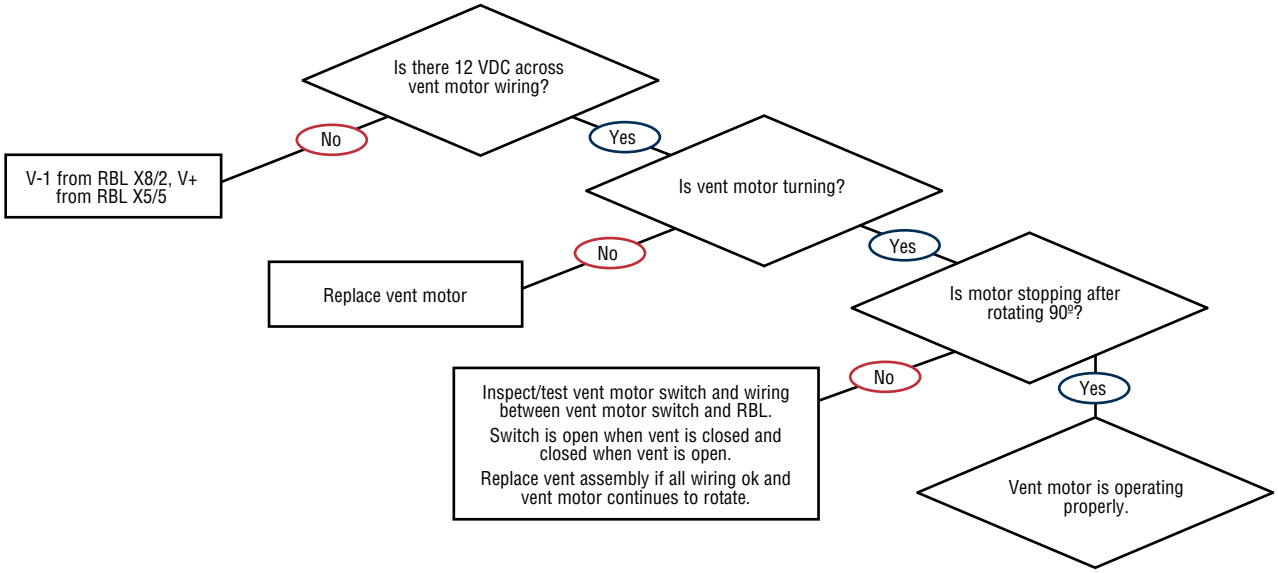

Is voltage across L1/L2 at main TB?
No
Yes
Check cord/plug/main circuit breaker – Install/ Repair/Reset as needed
Is voltage across terminal 1/F1 and terminal 1/F2 6.3A fuses?
No
Yes
Repair wiring between main TB and F/1F2 fuses
Is voltage across terminal 2/F1 and terminal 2/F2 6.3A fuses?
No
Yes
Replace blown F1/F2 fuses(s)
Repair wiring between F1/F2 and Power Supply
No
Is voltage across L1/N at power supply?
Yes
Is 12 VDC across terminals V+ and V- at power supply?
No
Yes
Replace power supply
Is 12 VDC across display (LCD) terminals DB3 and DB1?
Repair wiring between power supply and LCD
No
Yes
Test On/Off board cable for continuity. If cable ok, replace display board
No
Is there 12 VDC across pin 1-2 on On/Off board?
Yes
Test On/Off board -
On = Temporary switch between 1-3
Off = temporary switch between 1-4

TROUBLESHOOTING TREES

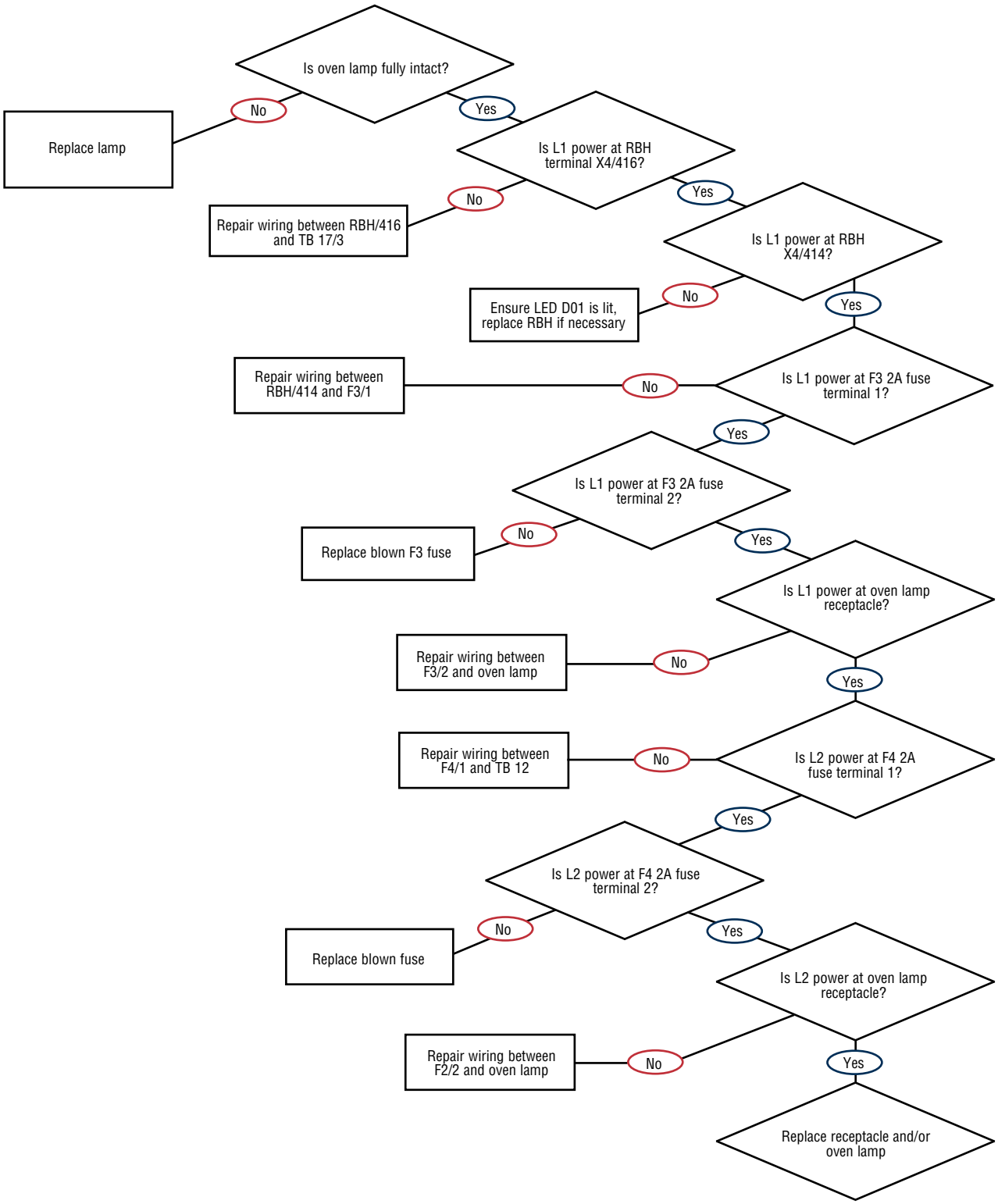
No Display/No Operation - Simple Control


Is voltage across L1/L2 at main TB?
No
Yes
Check cord/plug/main circuit breaker – Install/ Repair/Reset as needed
Is voltage across terminal 1/F1 and terminal 1/F2 6.3A fuses?
No
Yes
Repair wiring between main TB and F1/F2 fuses
Is voltage across terminal 2/F1 and terminal 2/F2 6.3A fuses?
No
Yes
No replace blown F1/F2 fuses(s)
Repair wiring between F1/F2 and power supply
No
Is voltage across L1/N at power supply?
Yes
Is 12 VDC across terminals V+ and V- at power supply?
No
Yes
Replace power supply
Is 12 VDC across RBL terminals X8-pins 1-2?
Repair wiring between power supply and RBL
No
Yes
Correct cable and retest
No
Is the ribbon cable securely seated at the RBL and the display board?
Yes
Is there continuity across all ribbon cable connection points end-to-end?
No
Yes
Replace ribbon cable
Is there 12 VDC at pins 31/32 and 33/34 on the ribbon cable?
Replace relay board
No
Yes
Test On/Off board cable for continuity. If cable ok, replace display board
No
Is there 12 VDC across pin 1-2 on On/Off board?
Yes
Test On/Off board -
On = Temporary switch between 1-3
Off = temporary switch between 1-4
Replace On/Off board as needed, if On/Off board tests ok, replace display board

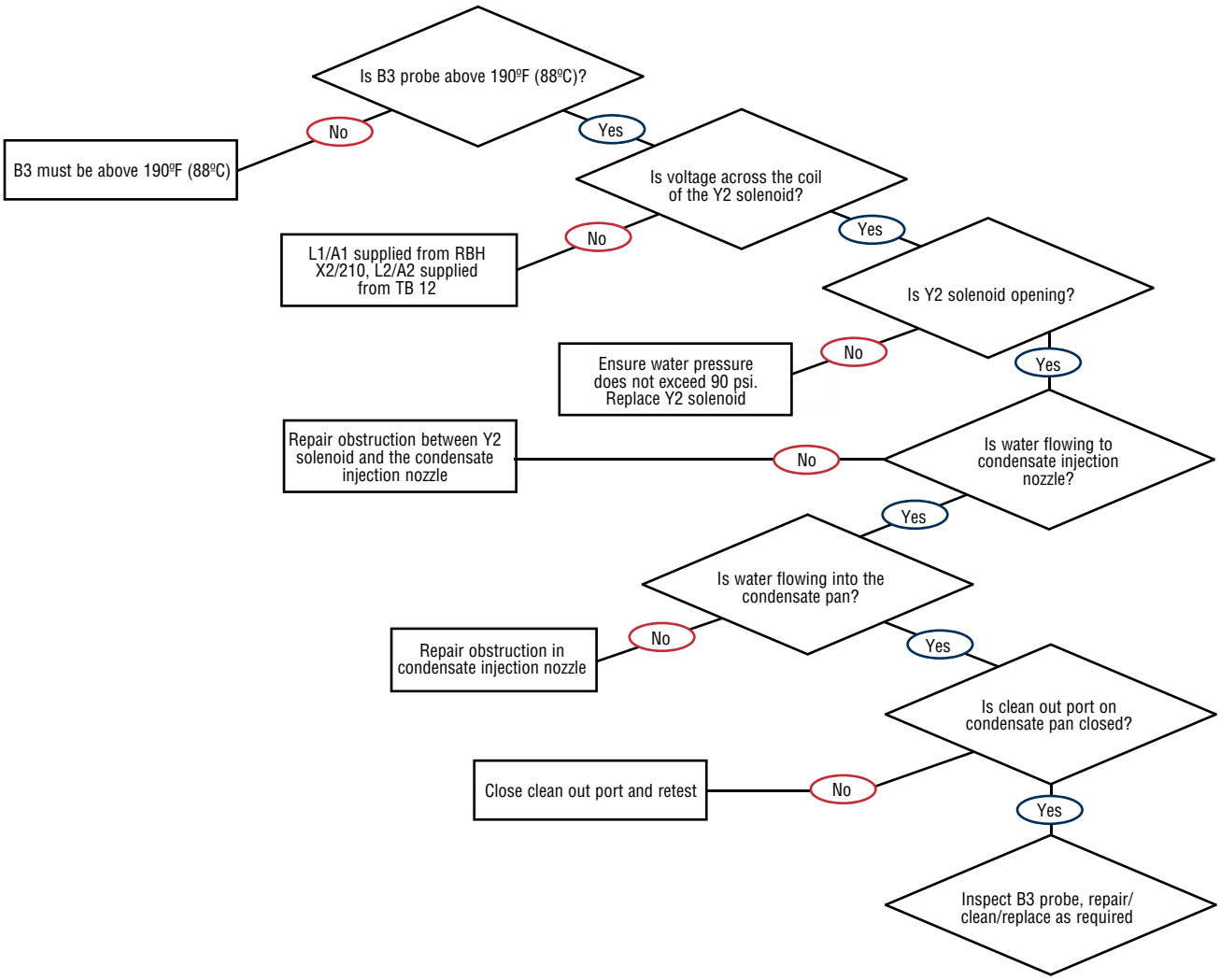
No Browning Vent Motor Operation


Is there 12 VDC across vent motor wiring?
No
V-1 from RBL X8/2, V+ from RBL X5/5
Yes
Is vent motor turning?
No
Replace vent motor
Yes
Is motor stopping after rotating 90º?
No
Inspect/test vent motor switch and wiring between vent motor switch and RBL.
Switch is open when vent is closed and closed when vent is open.
Replace vent assembly if all wiring ok and vent motor continues to rotate.
Yes
Vent motor is operating properly.

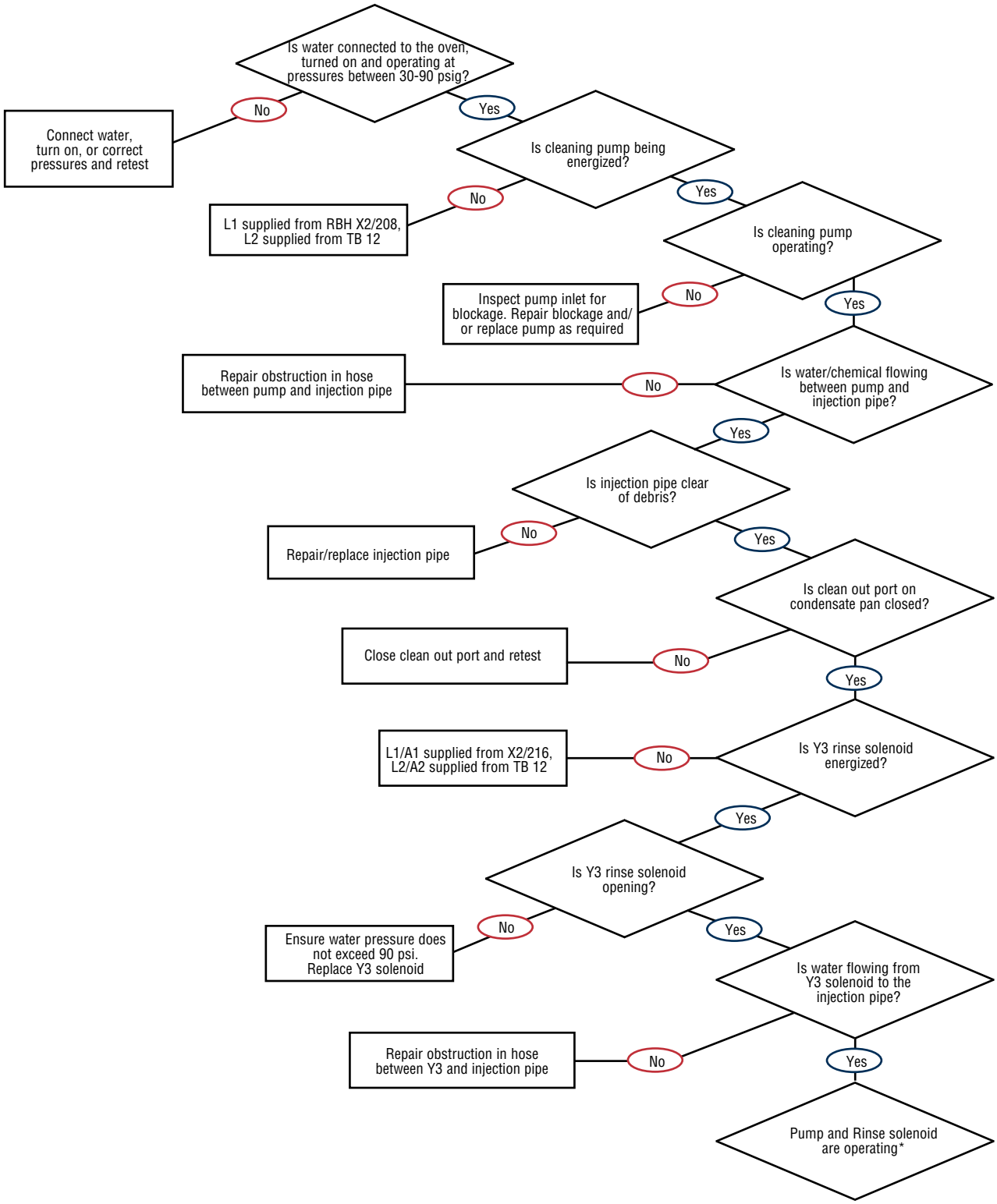
No Oven Lamp


Is oven lamp fully intact?
No
Replace lamp
Yes
Is L1 power at RBH terminal X4/416?
No
Repair wiring between RBH/416 and TB 17/3
Yes
Is L1 power at RBH X4/414?
No
Ensure LED D01 is lit, replace RBH if necessary
Yes
Is L1 power at F3 2A fuse terminal 1?
No
Repair wiring between RBH/414 and F3/1
Yes
Is L1 power at F3 2A fuse terminal 2?
No
Replace blown F3 fuse
Yes
Is L1 power at oven lamp receptacle?
No
Repair wiring between F3/2 and oven lamp
Yes
Is L2 power at F4 2A fuse terminal 1?
No
Repair wiring between F4/1 and TB 12
Yes
Is L2 power at F4 2A fuse terminal 2?
No
Replace blown fuse
Yes
Is L2 power at oven lamp receptacle?
No
Repair wiring between F2/2 and oven lamp
Yes
Replace receptacle and/or oven lamp

No Condensate Injection (E15 error code)

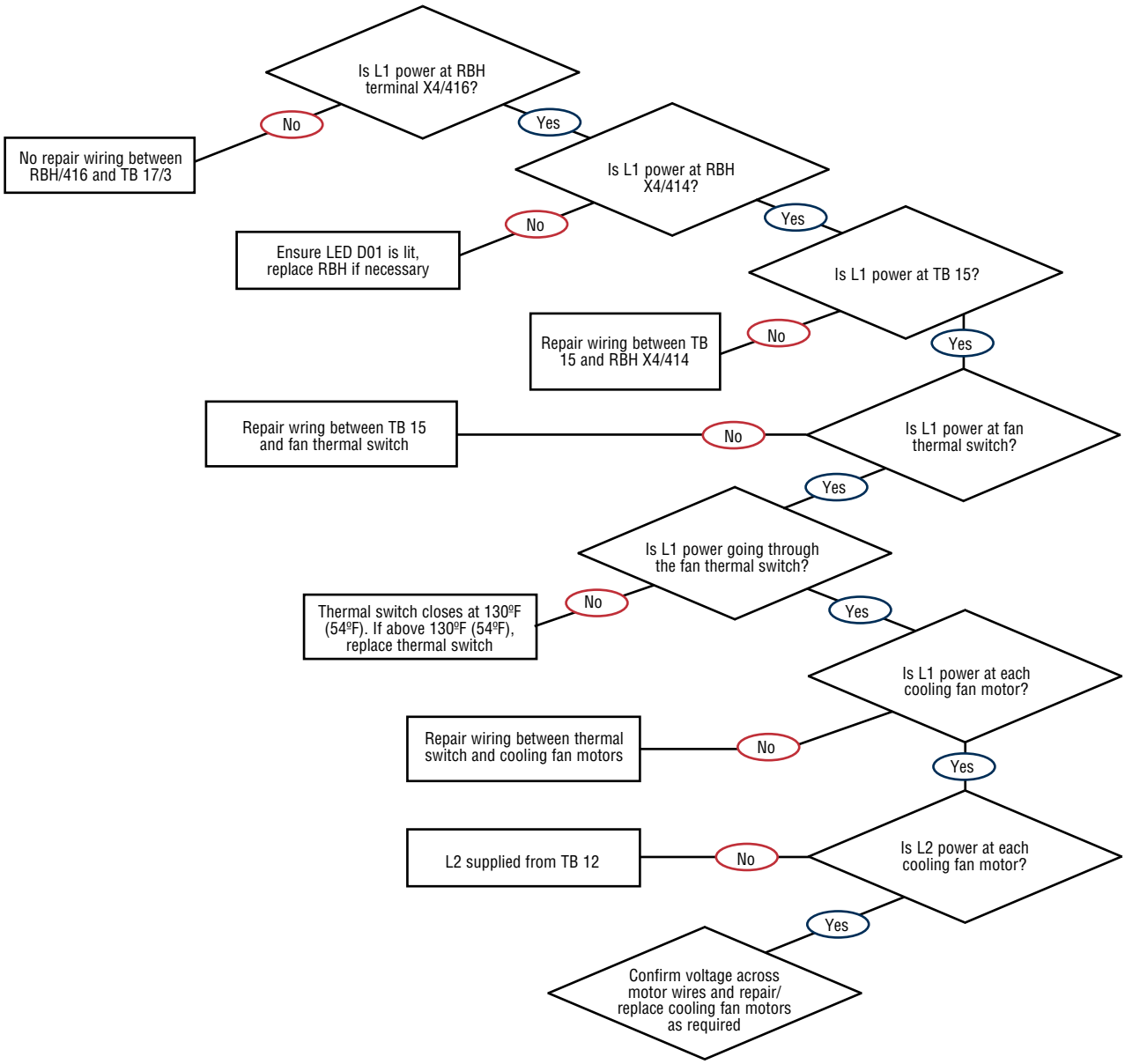

Is B3 probe above 190ºF (88ºC)?
No
B3 must be above 190ºF (88ºC)
Yes
Is voltage across the coil of the Y2 solenoid?
No
L1/A1 supplied from RBH X2/210, L2/A2 supplied from TB 12
Yes
Is Y2 solenoid opening?
No
Ensure water pressure does not exceed 90 psi. Replace Y2 solenoid
Yes
Is water flowing to condensate injection nozzle?
No
Repair obstruction between Y2 solenoid and the condensate injection nozzle
Yes
Is water flowing into the condensate pan?
No
Repair obstruction in condensate injection nozzle
Yes
Is clean out port on condensate pan closed?
No
Close clean out port and retest
Yes
Inspect B3 probe, repair/ clean/replace as required

No Cleaning Operation

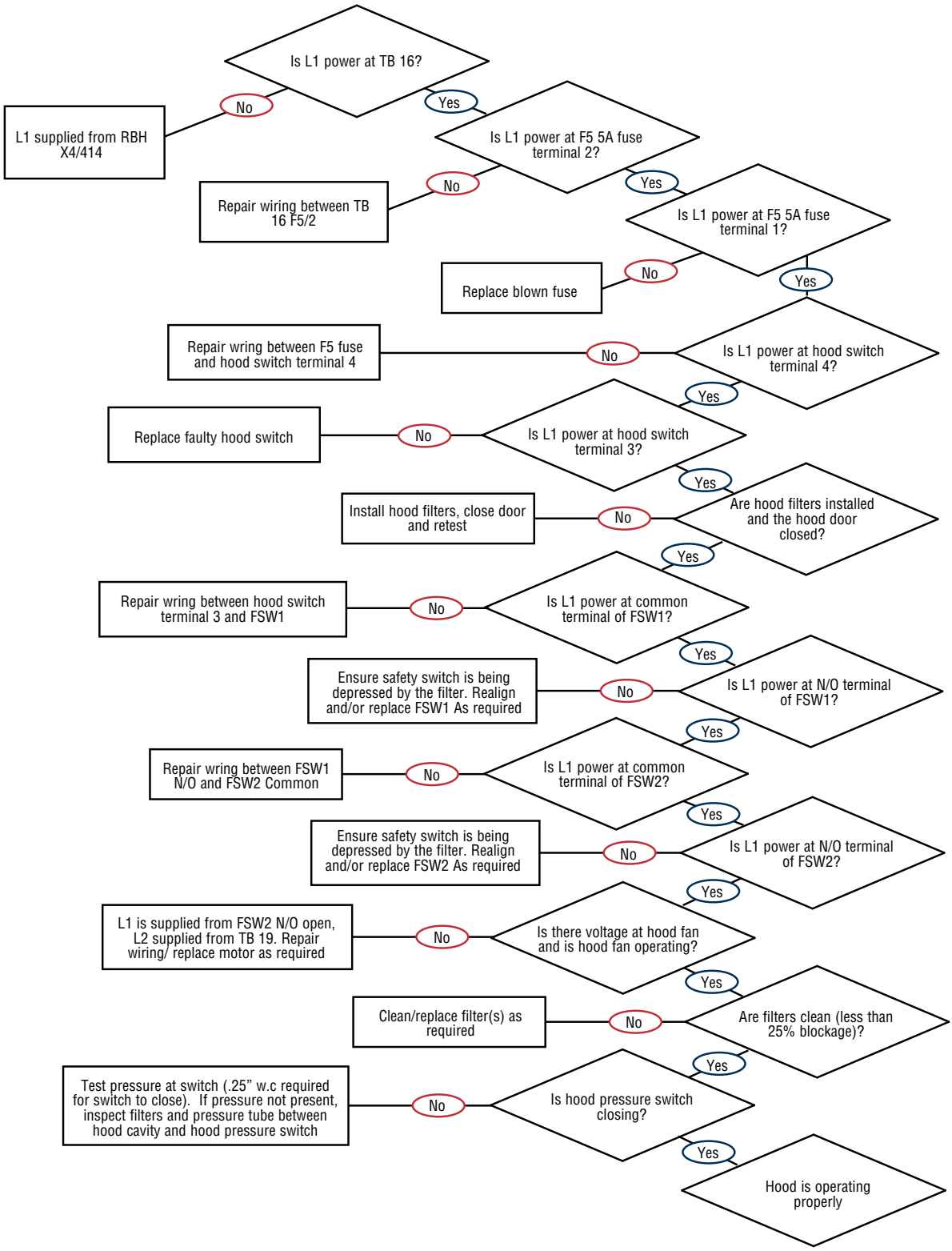

Is water connected to the oven, turned on and operating at pressures between 30-90 psig?
No
Connect water, turn on, or correct pressures and retest
Yes
Is cleaning pump being energized?
No
L1 supplied from RBH X2/208, L2 supplied from TB 12
Yes
Is cleaning pump operating?
No
Inspect pump inlet for blockage. Repair blockage and/ or replace pump as required
Yes
Is water/chemical flowing between pump and injection pipe?
No
Repair obstruction in hose between pump and injection pipe
Yes
Is injection pipe clear of debris?
No
Repair/replace injection pipe
Yes
Is clean out port on condensate pan closed?
No
Close clean out port and retest
Yes
Is Y3 rinse solenoid energized?
No
L1/A1 supplied from X2/216, L2/A2 supplied from TB 12
Yes
Is Y3 rinse solenoid opening?
No
Ensure water pressure does not exceed 90 psi. Replace Y3 solenoid
Yes
Is water flowing from Y3 solenoid to the injection pipe?
No
Repair obstruction in hose between Y3 and injection pipe
Yes
Pump and Rinse solenoid are operating*

*Refer to operation/care manual for best practices regarding cleaning procedures

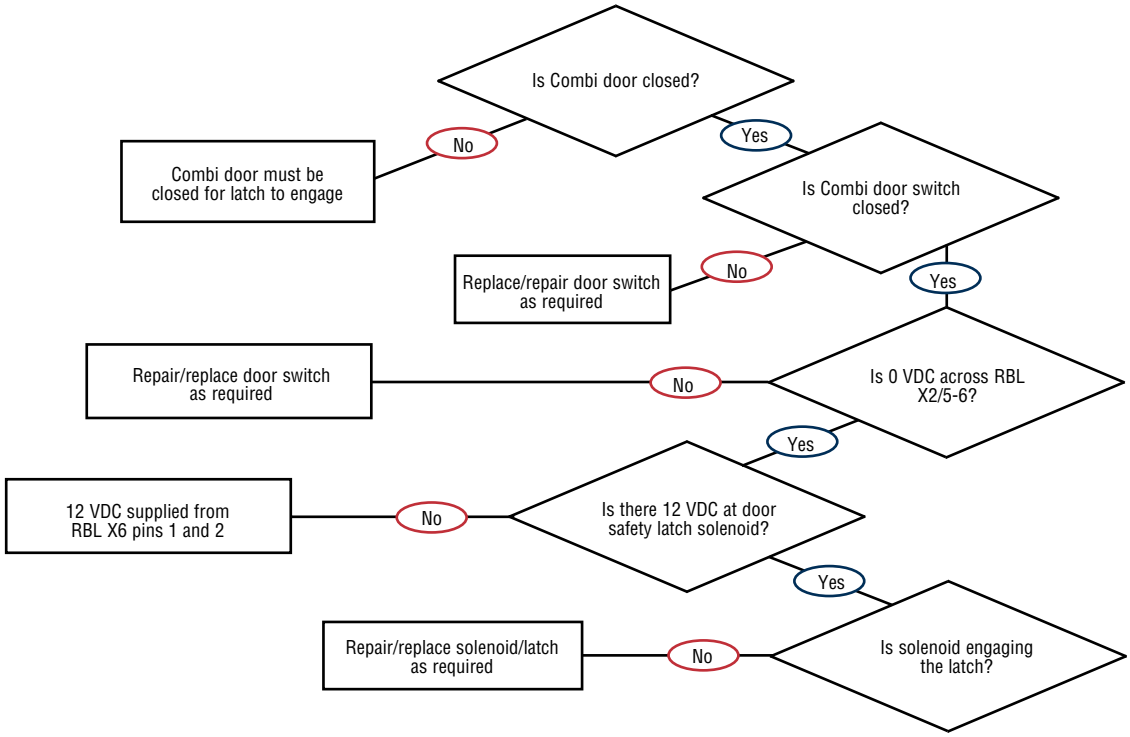
No Cooling Fan Operation


Is L1 power at RBH terminal X4/416?
No
No repair wiring between RBH/416 and TB 17/3
Yes
Is L1 power at RBH X4/414?
No
Ensure LED D01 is lit, replace RBH if necessary
Yes
Is L1 power at TB 15?
No
Repair wiring between TB 15 and RBH X4/414
Yes
Is L1 power at fan thermal switch?
No
Repair wring between TB 15 and fan thermal switch
Yes
Is L1 power going through the fan thermal switch?
No
Thermal switch closes at 130ºF (54ºF). If above 130ºF (54ºF), replace thermal switch
Yes
Is L1 power at each cooling fan motor?
No
Repair wiring between thermal switch and cooling fan motors
Yes
Is L2 power at each cooling fan motor?
No
L2 supplied from TB 12
Yes
Confirm voltage across motor wires and repair/ replace cooling fan motors as required

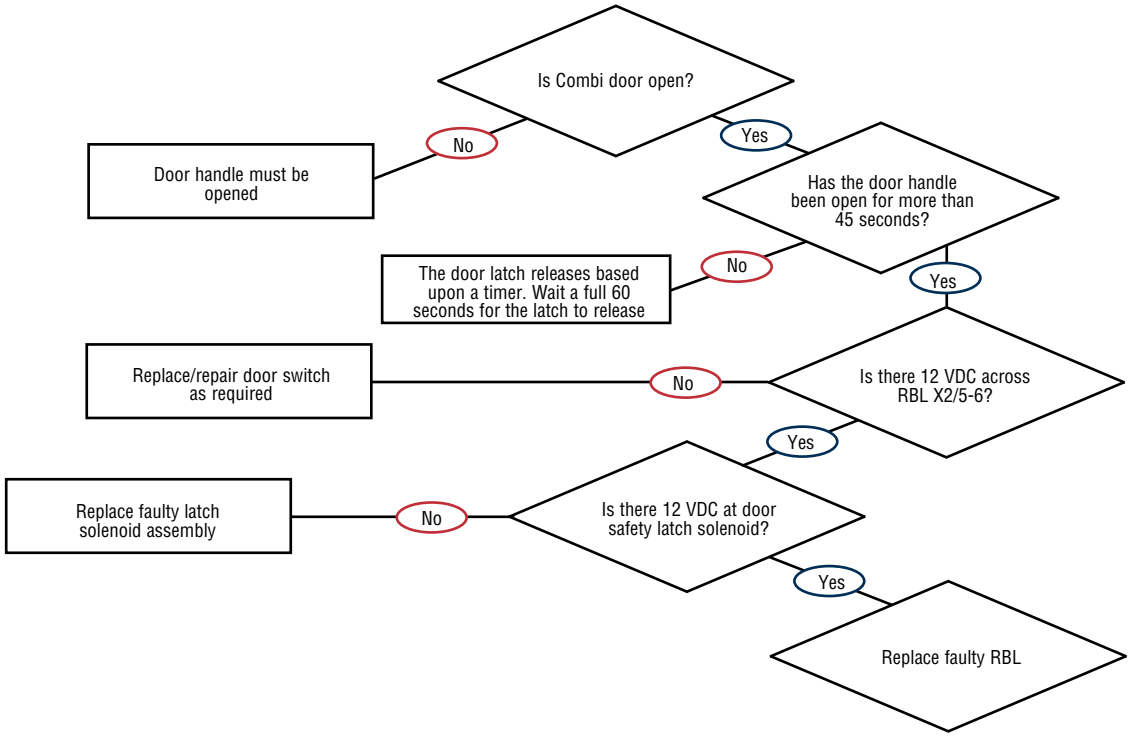
No Hood Operation


Is L1 power at TB 16?
No
L1 supplied from RBH X4/414
Yes
Is L1 power at F5 5A fuse terminal 2?
No
Repair wiring between TB 16 F5/2
Yes
Is L1 power at F5 5A fuse terminal 1?
No
Replace blown fuse
Yes
Repair wring between F5 fuse and hood switch terminal 4
No
Is L1 power at hood switch terminal 4?
Yes
Replace faulty hood switch
No
Is L1 power at hood switch terminal 3?
Yes
Install hood filters, close door and retest
No
Are hood filters installed and the hood door closed?
Yes
Repair wring between hood switch terminal 3 and FSW1
No
Is L1 power at common terminal of FSW1?
Yes
Ensure safety switch is being depressed by the filter. Realign and/or replace FSW1 As required
No
Is L1 power at N/O terminal of FSW1?
Yes
Repair wring between FSW1 N/O and FSW2 Common
No
Is L1 power at common terminal of FSW2?
Yes
Ensure safety switch is being depressed by the filter. Realign and/or replace FSW2 As required
No
Is L1 power at N/O terminal of FSW2?
Yes
L1 is supplied from FSW2 N/O open, L2 supplied from TB 19. Repair wiring/ replace motor as required
No
Is there voltage at hood fan and is hood fan operating?
Yes
Clean/replace filter(s) as required
No
Are filters clean (less than 25% blockage)?
Yes
Test pressure at switch (.25" w.c required for switch to close). If pressure not present, inspect filters and pressure tube between hood cavity and hood pressure switch
No
Is hood pressure switch closing?
Yes
Hood is operating properly

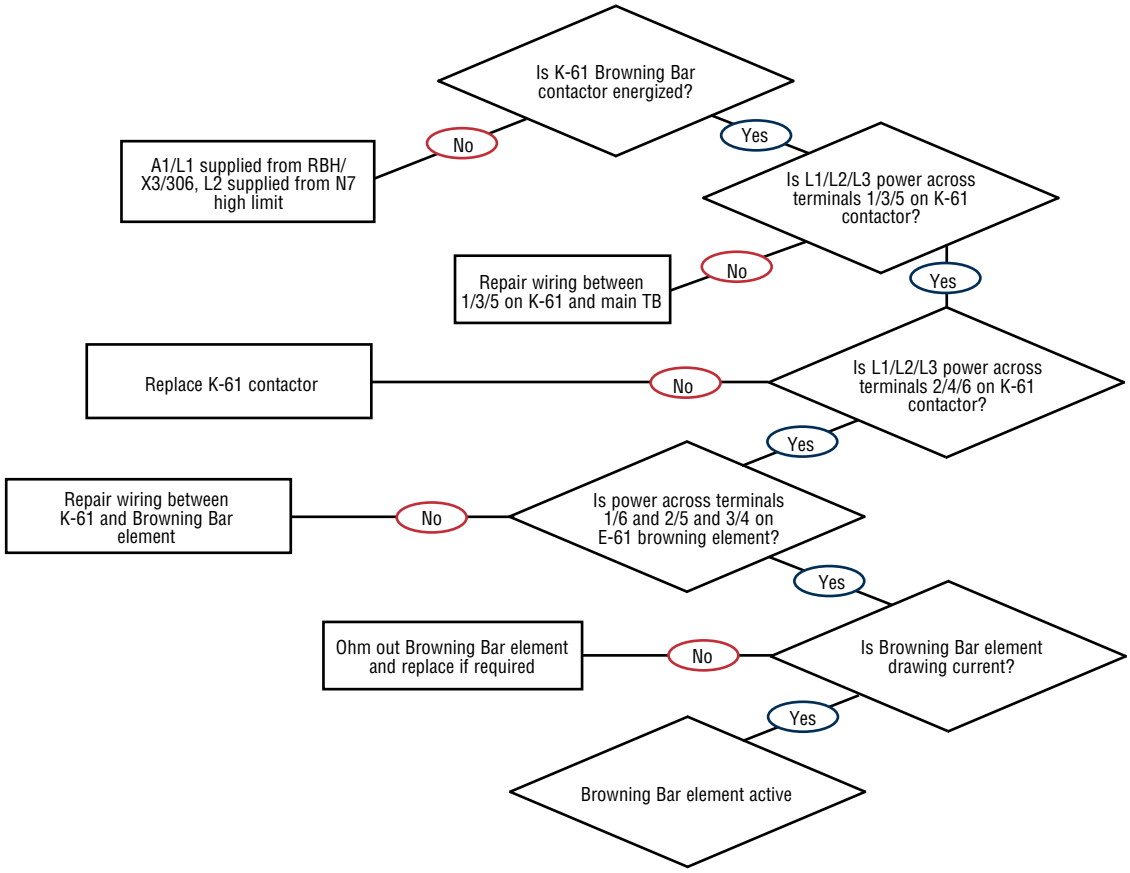
Hood Door Safety Latch Not Closing



Hood Door Safety Latch Not Closing

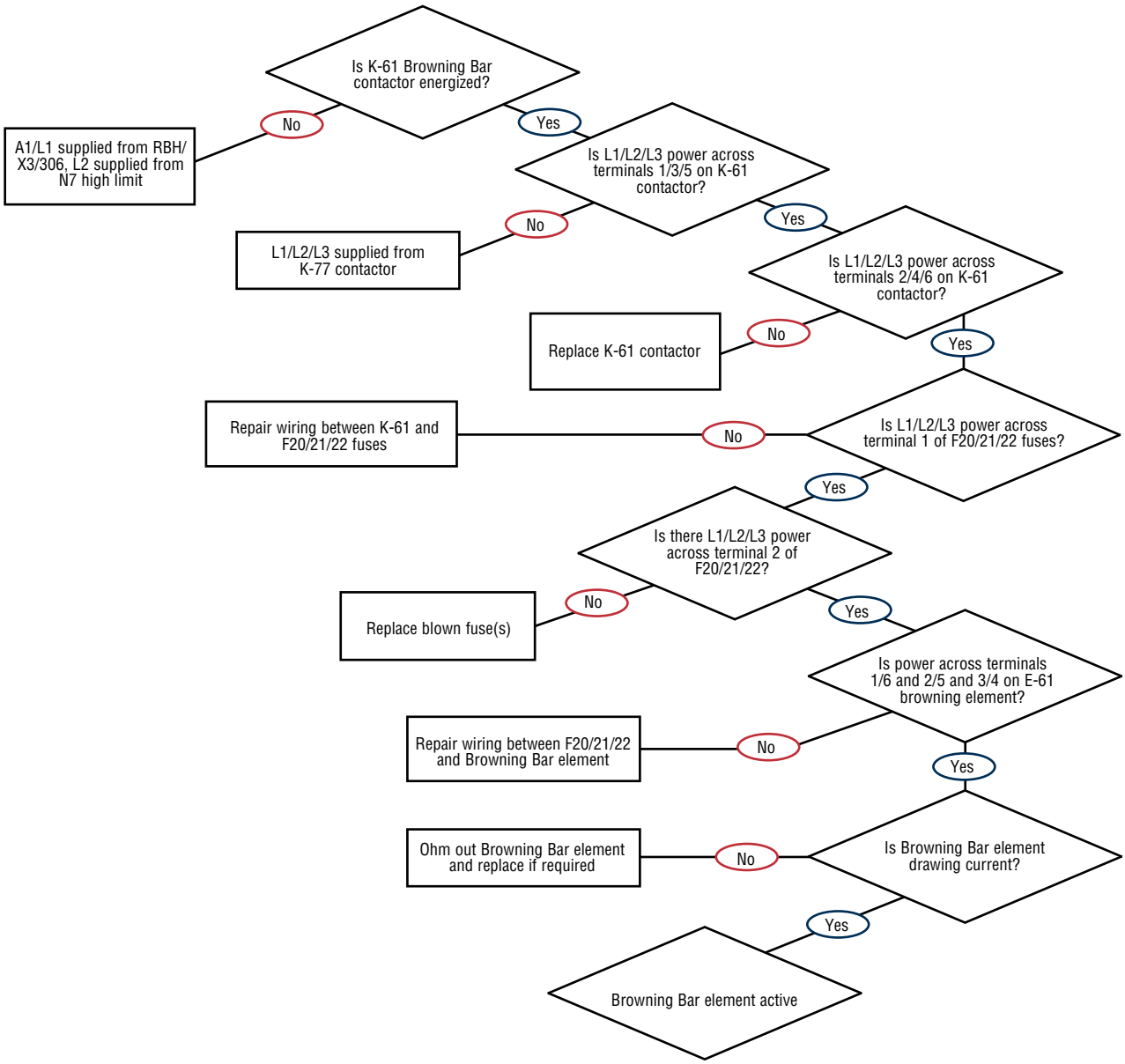

Is Combi door open?
No
Door handle must be opened
Yes
Has the door handle been open for more than 45 seconds?
No
The door latch releases based upon a timer. Wait a full 60 seconds for the latch to release
Yes
Is there 12 VDC across RBL X2/5-6?
No
Replace/repair door switch as required
Yes
Is there 12 VDC at door safety latch solenoid?
No
Replace faulty latch solenoid assembly
Yes
Replace faulty RBL

No Browning Bar Heat (208-240V, 3PH)

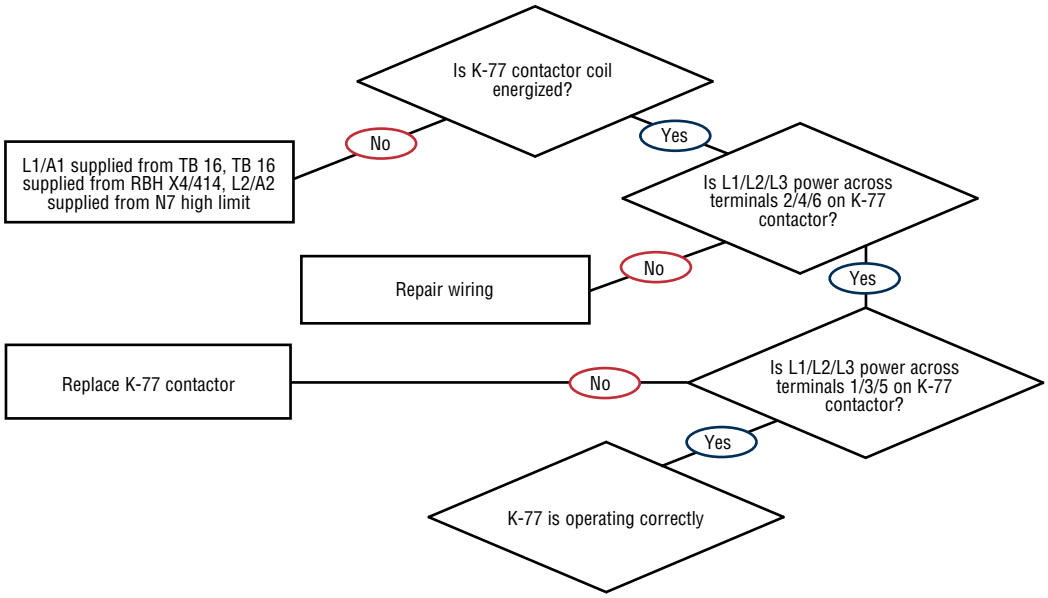

Is K-61 Browning Bar contactor energized?
No
A1/L1 supplied from RBH/ X3/306, L2 supplied from N7 high limit
Yes
Is L1/L2/L3 power across terminals 1/3/5 on K-61 contactor?
No
Repair wiring between 1/3/5 on K-61 and main TB
Yes
Replace K-61 contactor
No
Is L1/L2/L3 power across terminals 2/4/6 on K-61 contactor?
Yes
Repair wiring between K-61 and Browning Bar element
No
Is power across terminals 1/6 and 2/5 and 3/4 on E-61 browning element?
Yes
Ohm out Browning Bar element and replace if required
No
Is Browning Bar element drawing current?
Yes
Browning Bar element active

TROUBLESHOOTING TREES

No Browning Bar Heat (380-415V, 3PH)


Is K-61 Browning Bar contactor energized?
No
A1/L1 supplied from RBH/ X3/306, L2 supplied from N7 high limit
Yes
Is L1/L2/L3 power across terminals 1/3/5 on K-61 contactor?
No
L1/L2/L3 supplied from K-77 contactor
Yes
Is L1/L2/L3 power across terminals 2/4/6 on K-61 contactor?
No
Replace K-61 contactor
Yes
Repair wiring between K-61 and F20/21/22 fuses
No
Is L1/L2/L3 power across terminal 1 of F20/21/22 fuses?
Yes
Is there L1/L2/L3 power across terminal 2 of F20/21/22?
No
Replace blown fuse(s)
Yes
Is power across terminals 1/6 and 2/5 and 3/4 on E-61 browning element?
Repair wiring between F20/21/22 and Browning Bar element
No
Yes
Ohm out Browning Bar element and replace if required
No
Is Browning Bar element drawing current?
Yes
Browning Bar element active

K-77 Safety Contactor Troubleshooting (380-415V only)


Is K-77 contactor coil energized?
No
L1/A1 supplied from TB 16, TB 16 supplied from RBH X4/414, L2/A2 supplied from N7 high limit
Yes
Is L1/L2/L3 power across terminals 2/4/6 on K-77 contactor?
No
Repair wiring
Yes
Is L1/L2/L3 power across terminals 1/3/5 on K-77 contactor?
No
Replace K-77 contactor
Yes
K-77 is operating correctly

SERVICE PARTS

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Top Interior and Right Side E-9
Interior Rear E-10
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Combitherm Motor E-12
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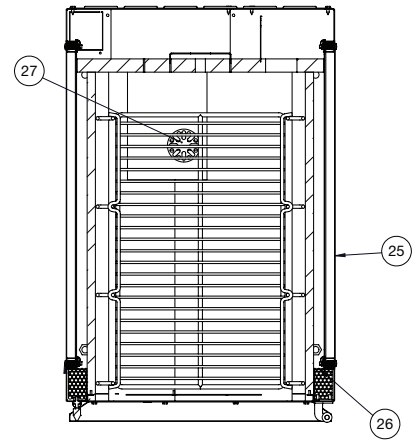
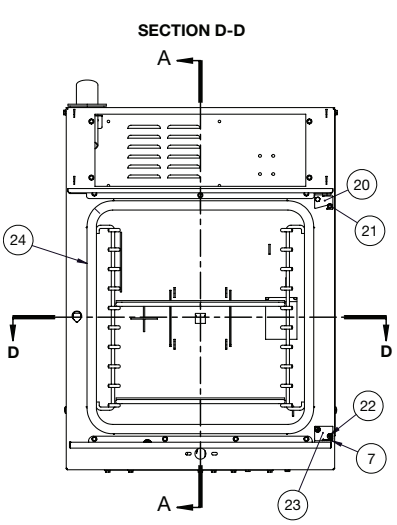
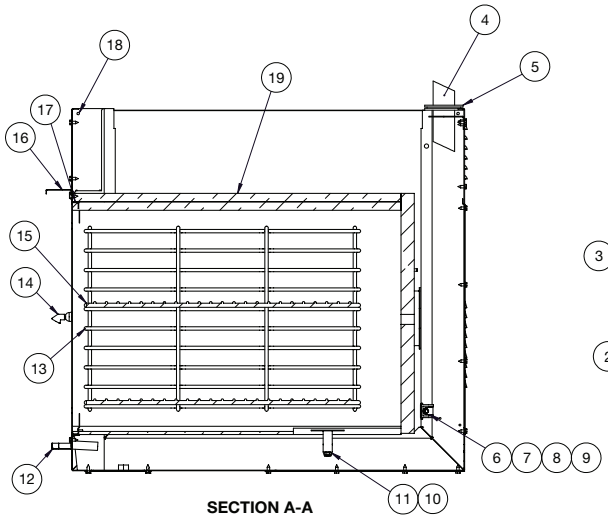
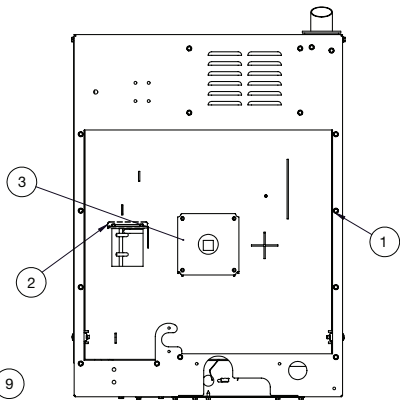
PARTS INFORMATION

EXTERIOR VIEW





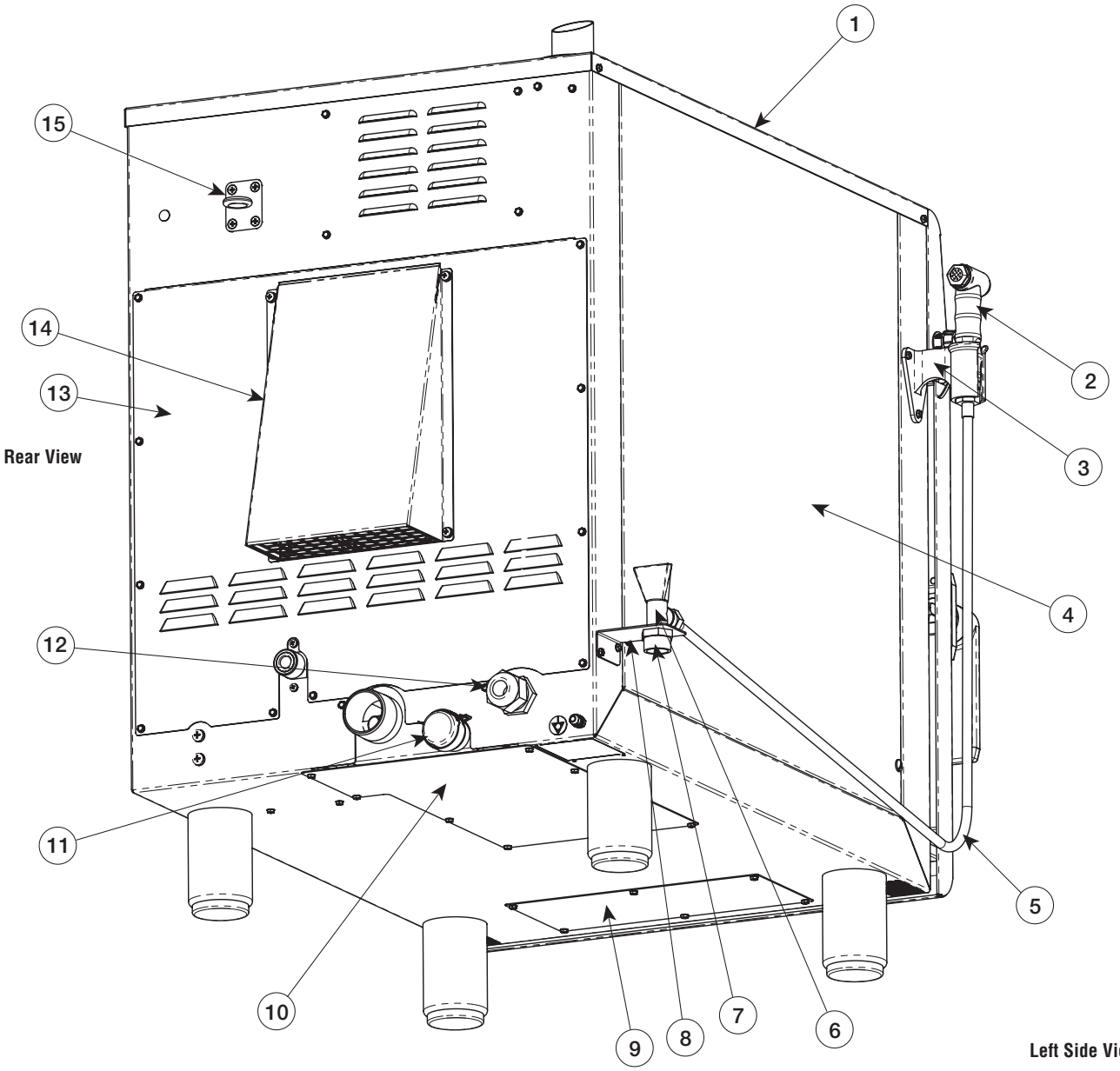




Item	Part	Description	Qty.
1	SC-29871	Screw, #8 x 1/2" Hex Flg	47
2	1012981	Cover, Element Splash	1
3	1012382	Bracket, Motor Mount	1
4	5014726	Weld Assembly, Vent Tube	1
5	BU-28391	Bushing, Socket, Membrane	1
6	CL-22196	Clip, Holding, M6	4
7	ST-22193	Stud, M6 x 27mm, 1/4 Turn	4
8	SD-22194	Spring, M6 x 48, Safety	4
9	WS-22195	Washer, Safety, Steel	4
10	WS-22302	Washer, Split Lock	1
11	NU-22292	Nut, M8-1.25, Hex, 18-8, Din #934	1
12	5014033	Drip Tray, Weld Assembly	1
13	SR-29602	Side Rack, Wire, S/S	2
14	LT-29636	Latch, Door, Dog	1
15	SH-2903	Shelf	2
16	1012798	Deflector Strip	1

Item	Part	Description	Qty.
17	1012295	Bracket, Gasket Corner Channel	1
18	SC-22281	Screw, M5 x 0.81 x 16mm Flat	3
19	5015470	Insulation Kit	1
20	1012300	Plate, Hinge Door, Upper, RH	1
	1012301	Plate, Hinge Door, Upper, LH	1
21	SC-22926	Screw, M5 x 0.8 x 16mm, Hex	3
22	SC-22281	Screw, M5 x 0.8 x 16mm Flat	2
23	1012822	Plate, Hinge Door, Lower, LH	1
	1012821	Plate, Hinge Door, Lower, RH	1
24	5014123	Gasket, Door	1
25	1012268	Panel, Side Access, S/S	2
	1013024	Panel, Side Access, Painted (specify color)	2
26	1012637	Bracket, Air Tunnel	1
27	DA-2943	Drain Screen Assembly	1
28*	WS-29885	Washer, Nylon, For 5/16"	1

REAR & BOTTOM SERVICE PARTS



Item	Part	Description	Qty.
1	1012266	Panel, Top Access, S/S**	1
2	PB-29664	Plumbing, Hand Sprayer	1
3	HL-29741	Holder, Hand Sprayer	1
4	1012268	Panel, Side Access, S/S**	1
5	HO-29669	Hose, Hand Sprayer	1
6	VA-29646	Valve, Hand Sprayer Shut-off	1
7	PB-35228	Plumbing, 3/4" GHT (M) to 1/2" NPT (F)	1
8	1012645	Bracket, Mount Shut-off Valve	1

Item	Part	Description	Qty.
9	1013370	Panel, Bottom Access	1
10	1013359	Cover, Condenser Tank	1
11	CP-29648	Cap, Push-on, Fits 1-1/4" OD	1
12	BU-34977	Cable Gland, M32, Black	1
13	5017990	Back Panel with Inserts	1
14	1015490	Air Vent	1
15	BT-26884	Tether bracket (not standard on all models)	1

** See following page for painted panel part numbers

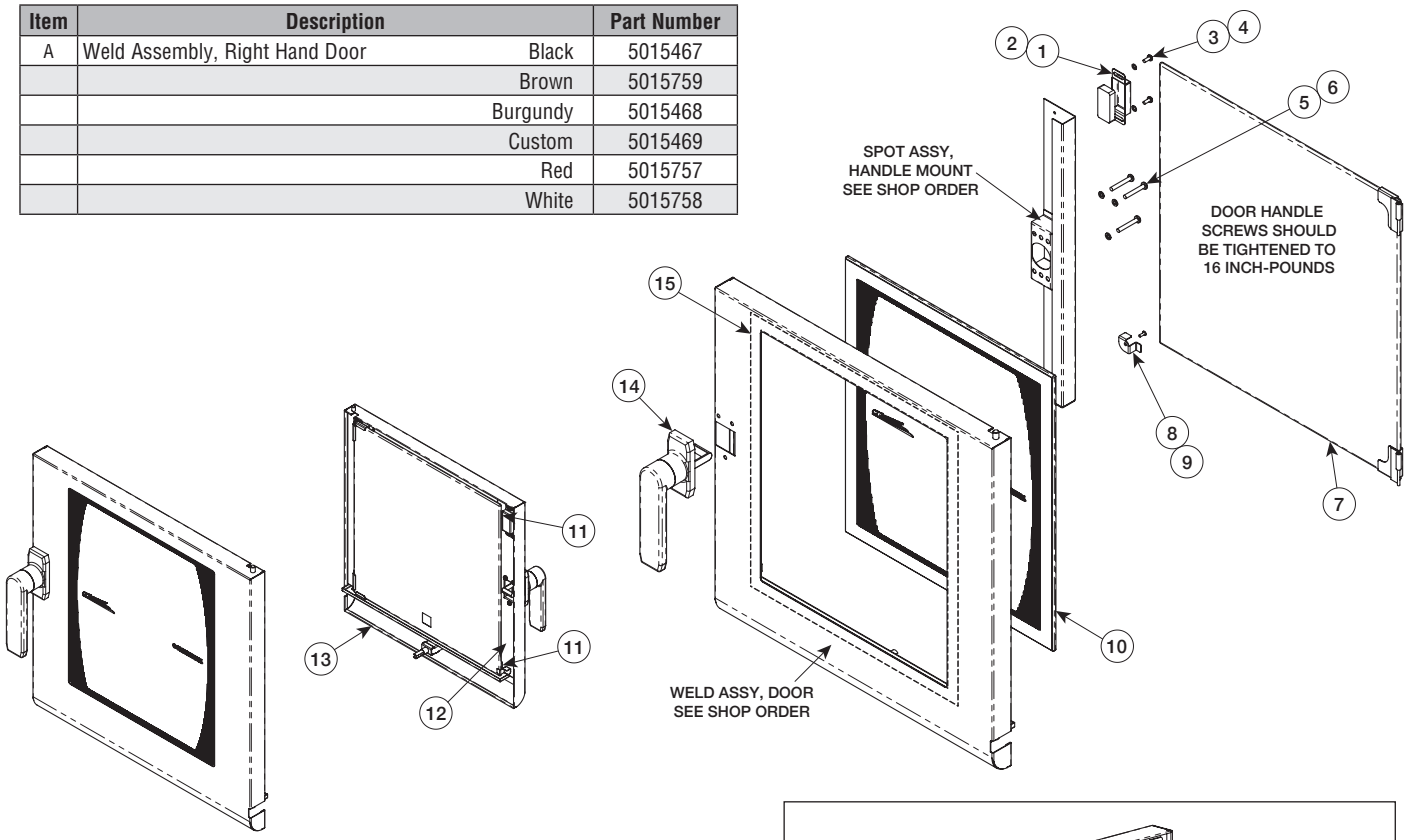
PAINTED PANELS

Item	Description		Part Number
A	Panel, Cover, Sensor	Black	PE-35548
		Brown	PE-35552
		Burgundy	PE-35549
		Custom	PE-35553
		Red	PE-35550
		White	PE-35551
B	Panel, Enclosure, Base	Black	PE-35536
		Custom	PE-35541
		Brown	PE-35540
		Burgundy	PE-35537
		Red	PE-35538
		White	PE-35539
C	Panel, Enclosure, Top	Black	PE-35542
		Brown	PE-35546
		Burgundy	PE-35543
		Custom	PE-35547
		Red	PE-35544
		White	PE-35545
D	Panel, Side Access	Black	PE-35524
		Brown	PE-35528
		Burgundy	PE-35525
		Custom	PE-35529
		Red	PE-35526
		White	PE-35527
E	Panel, Spot, Control, Simple	Black	PE-35584
		Brown	PE-35588
		Burgundy	PE-35585
		Custom	PE-35589
		Red	PE-35586
		White	PE-35587
F	Panel, Spot, Control, Touch, LH	Black	PE-35590
		Brown	PE-35594
		Burgundy	PE-35591
		Custom	PE-35595
		Red	PE-35592
		White	PE-35593
G	Panel, Spot, Control, Touch, , RH	Black	PE-35554
		Brown	PE-35558
		Burgundy	PE-35555
		Custom	PE-35559
		Red	PE-35556
H	Panel, Spot, Cover, Access	Black	PE-35632
		Brown	PE-35636
		Burgundy	PE-35633
		Custom	PE-35637
		Red	PE-35634
		White	PE-35635
I	Panel, Spot, Enclosure	Black	PE-35626
		Brown	PE-35630
		Burgundy	PE-35627
		Custom	PE-35631
		Red	PE-35628
		White	PE-35629
J	Panel, Spot, Hndl Mnt, LH Door	Black	PE-35602
		Brown	PE-35606
		Burgundy	PE-35603
		Custom	PE-35607
		Red	PE-35604
		White	PE-35605

Item	Panel Color		Part Number
K	Panel, Spot, Hndl Mnt, RH Door	Black	PE-35596
		Brown	PE-35600
		Burgundy	PE-35597
		Custom	PE-35601
		Red	PE-35598
		White	PE-35599
L	Panel, Spot/Weld, Touch Control, LH	Black	PE-35614
		Brown	PE-35618
		Burgundy	PE-35615
		Custom	PE-35619
		Red	PE-35616
		White	PE-35617
M	Panel, Spot/Weld, Touch Control, RH	Black	PE-35608
		Brown	PE-35612
		Burgundy	PE-35609
		Custom	PE-35613
		Red	PE-35610
		White	PE-35611
N	Panel, Top Access	Black	PE-35530
		Brown	PE-35534
		Burgundy	PE-35531
		Custom	PE-35535
		Red	PE-35532
		White	PE-35533
O	Panel, Weld, Door, LH	Black	PE-35578
		Brown	PE-35582
		Burgundy	PE-35579
		Custom	PE-35583
		Red	PE-35580
		White	PE-35581
P	Panel, Weld, Door, RH	Black	PE-35572
		Brown	PE-35576
		Burgundy	PE-35573
		Custom	PE-35577
		Red	PE-35574
		White	PE-35575
Q	Panel, Weld, Outer Shell, LH	Black	PE-35566
		Brown	PE-35570
		Burgundy	PE-35567
		Custom	PE-35571
		Red	PE-35568
		White	PE-35569
R	Panel, Weld, Outer Shell, RH	Black	PE-35560
		Brown	PE-35564
		Burgundy	PE-35561
		Custom	PE-35565
		Red	PE-35562
		White	PE-35563
S	Panel, Weld/Spot, Door, LH	Black	PE-35638
		Brown	PE-35642
		Burgundy	PE-35639
		Custom	PE-35643
		Red	PE-35640
		White	PE-35641
T	Panel, Weld/Spot, Door, RH	Black	PE-35620
		Brown	PE-35624
		Burgundy	PE-35621
		Custom	PE-35625
		Red	PE-35622
		White	PE-35623

RIGHT HAND DOOR ASSEMBLY

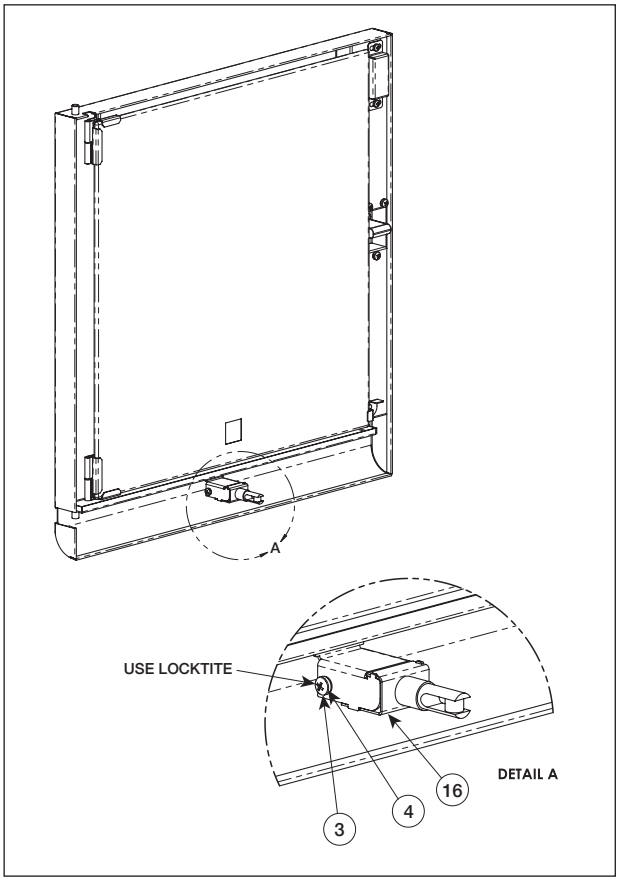
Item	Description	Part Number
A	Weld Assembly, Right Hand Door Black	5015467
	Brown	5015759
	Burgundy	5015468
	Custom	5015469
	Red	5015757
	White	5015758


SPOT ASSY, HANDLE MOUNT SEE SHOP ORDER
DOOR HANDLE SCREWS SHOULD BE TIGHTENED TO 16 INCH-POUNDS
WELD ASSY, DOOR SEE SHOP ORDER

Right Hand Door Assembly - 5015466

Item	Part	Description	Qty.
1	1007698	Cover, Door Magnet, Single	1
2	MA-25734	Magnet, Door, AR-7E, Black	1
3	SC-22273	Screw, M4 x 0.7mm Pan	3
4	WS-22300	Washer, M4 Split Lock	3
5	SC-29735	Screw, M5 x 0.8 x 35mm Pan	3
6	WS-22301	Washer, M5 Split Lock S/S 18-8	3
7	5013647	Assembly, Inner Glass Right Hand Door	1
8	1012299	Clip, Inner Glass Right Hand Door	1
9	RI-27108	Rivet, Sealed	1
10	GL-29868	Glass, Outer, Door	1
11	SP-36060	Spacer, Inner Glass Table Top	2
12	5014392	Spot, Assembly, Handle Mount S/S	1
13	5015462	Spot Assembly, Door Right Hand S/S	1
14	HD-29635	Handle, Door, Pendulum	1
15	TA-25125	Tape, Duplomont 5'	1
16	5015005	Assembly, Latch	1

*NOT SHOWN

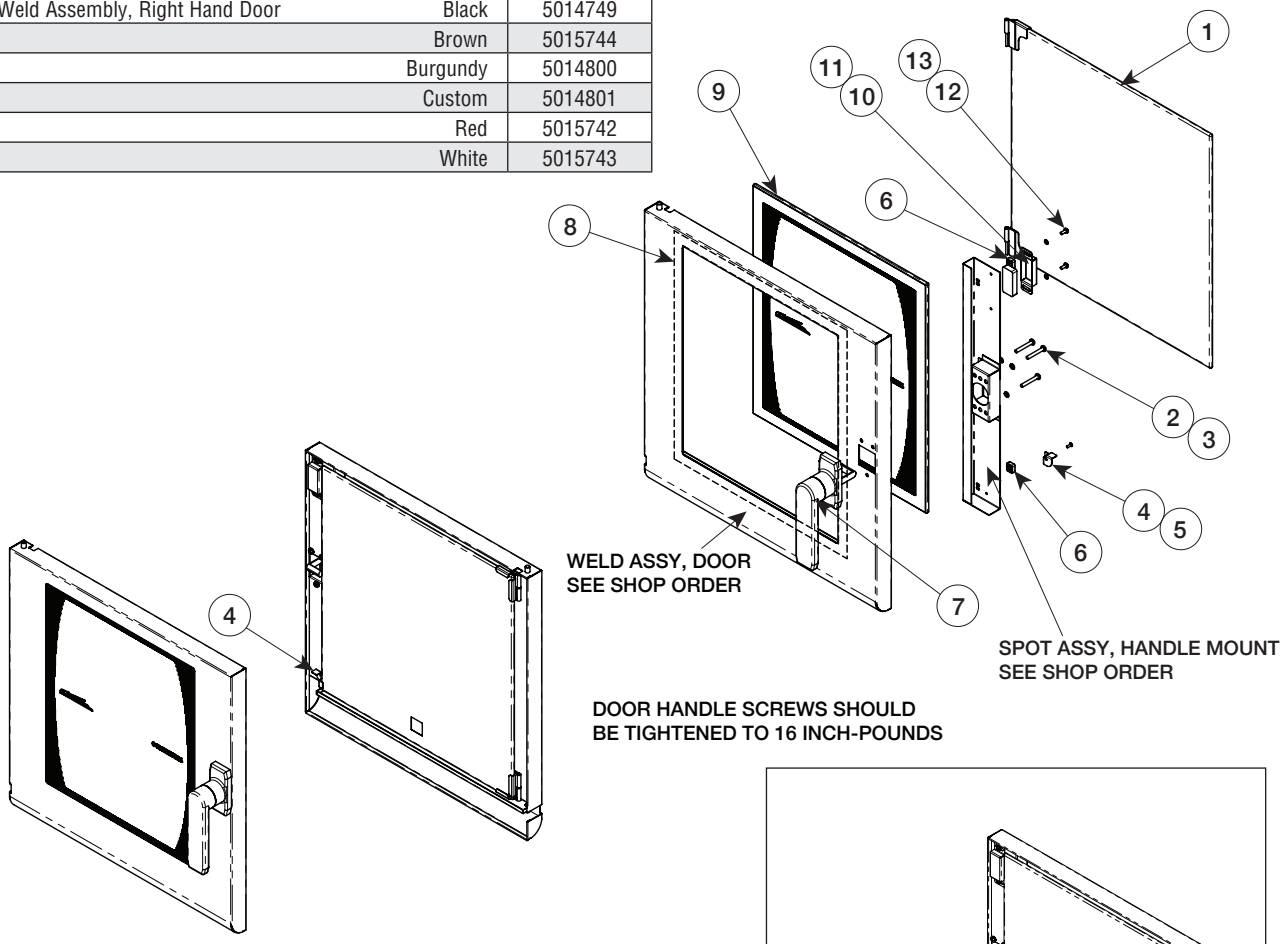


Right Hand Door Assembly with Ventless Hood - 5015466

PARTS INFORMATION

LEFT HAND DOOR ASSEMBLY

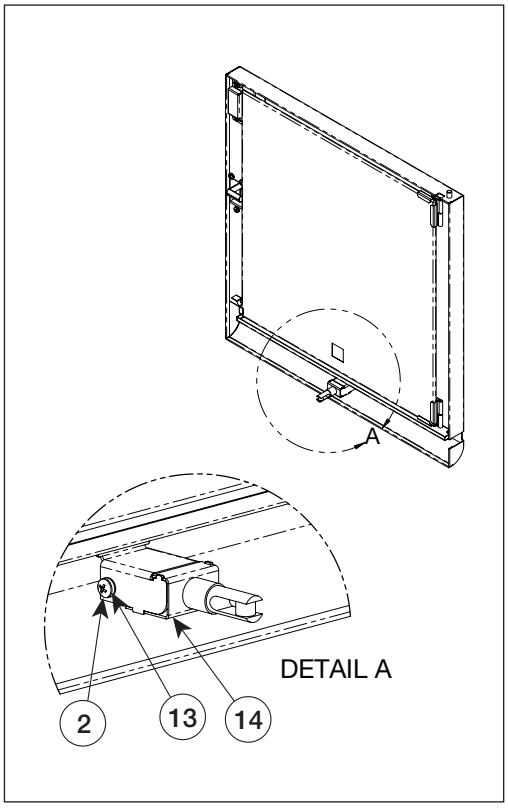
Item	Description		Part Number
A	Weld Assembly, Right Hand Door	Black	5014749
		Brown	5015744
		Burgundy	5014800
		Custom	5014801
		Red	5015742
		White	5015743



Left Hand Door Assembly - 5014748

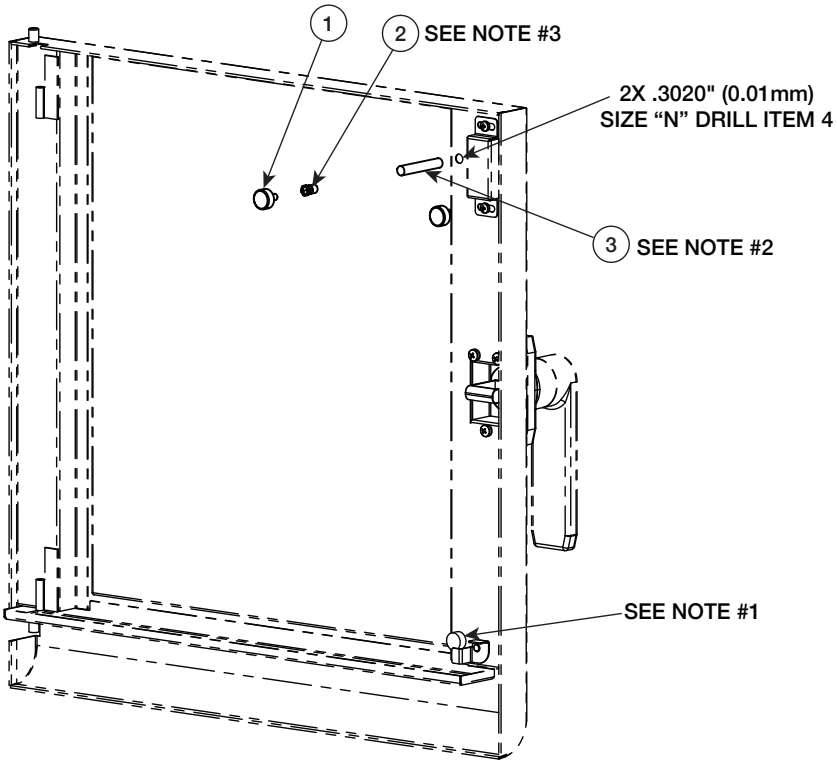
Item	Part	Description	Qty.
1	5014828	Assembly, Inner Glass Left Hand Door	1
2	SC-29735	Screw, M5 x 0.8 x 35mm Pan	3
3	WS-22301	Washer, M5 Split Lock S/S 18-8	3
4	1013174	Clip, Inner Glass Left Hand Door	1
5	RI-27108	Rivet, Sealed	1
6	SP-36060	Spacer, Inner Glass Table Top	2
7	HD-29635	Handle, Door, Pendulum	1
8	TA-25125	Tape, Duplomont 5'	1
9	GL-29868	Glass, Outer, Door	1
10	1007698	Cover, Door Magnet, Single	1
11	MA-25734	Magnet, Door, AR-7E, Black	1
12	SC-22273	Screw, M4 x 0.7 x 10mm Pan	2
13	WS-22300	Washer, Split Lock	2
14	5015005	Assembly, Latch	1

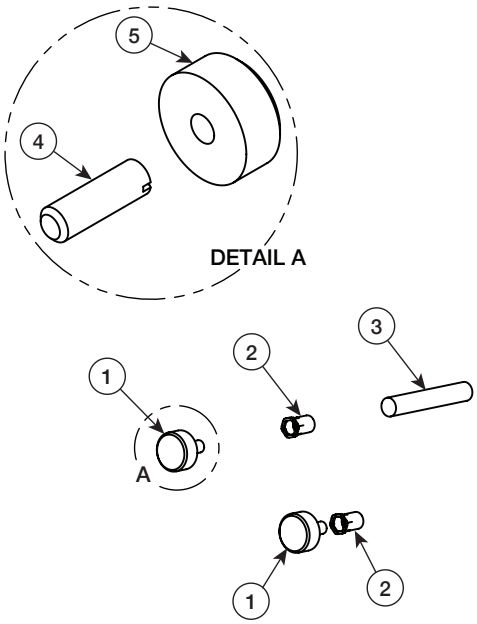
*NOT SHOWN



Left Hand Door Assembly with Ventless Hood - 5015584

FIELD RETROFIT KIT: BUMPER WITH THREADS





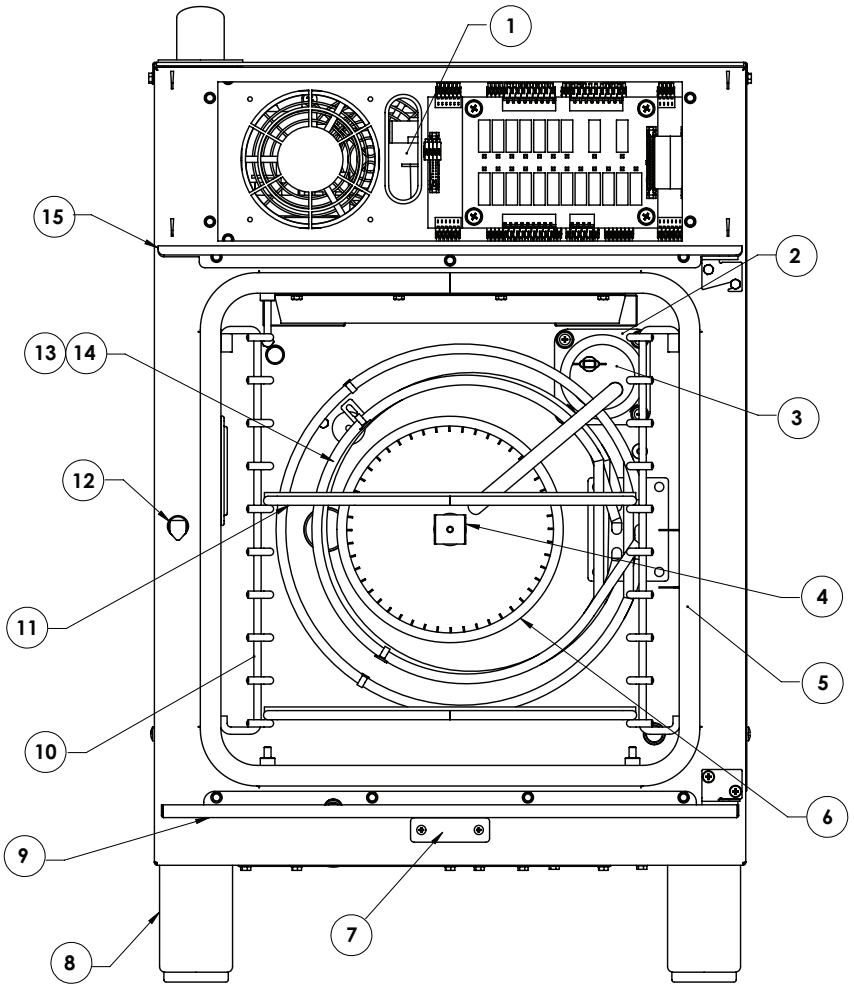
CONTENTS OF KIT,
DOOR NOT INCLUDED

RETROFIT KIT INSTRUCTIONS:
1. REMOVE OLD BUMPER AND CLEAN SURFACES.
2. DRILL OUT TWO HOLES (SIZE N: 0.3020") WITH DRILL BIT PROVIDED.
3. USE INSERT GUN TO CRIMP TWO INSERT NUTS (NU-23909).
4. INSTALL BUMPER WITH THREADS (5018362), 2 PLACES.

Item	Part	Description	Qty.
1	5018362	Bumper With Threads	2
2	NU-23909	Nut, Hex Insert M5	2
3	68566	Drill Bit, Size N	1
4	SC-25091	Screw, M5 x 0.8 x 16mm SSCR	1
5	BM-37115	Bumper Stop, Inner Door	1

PARTS INFORMATION

INTERIOR VIEW

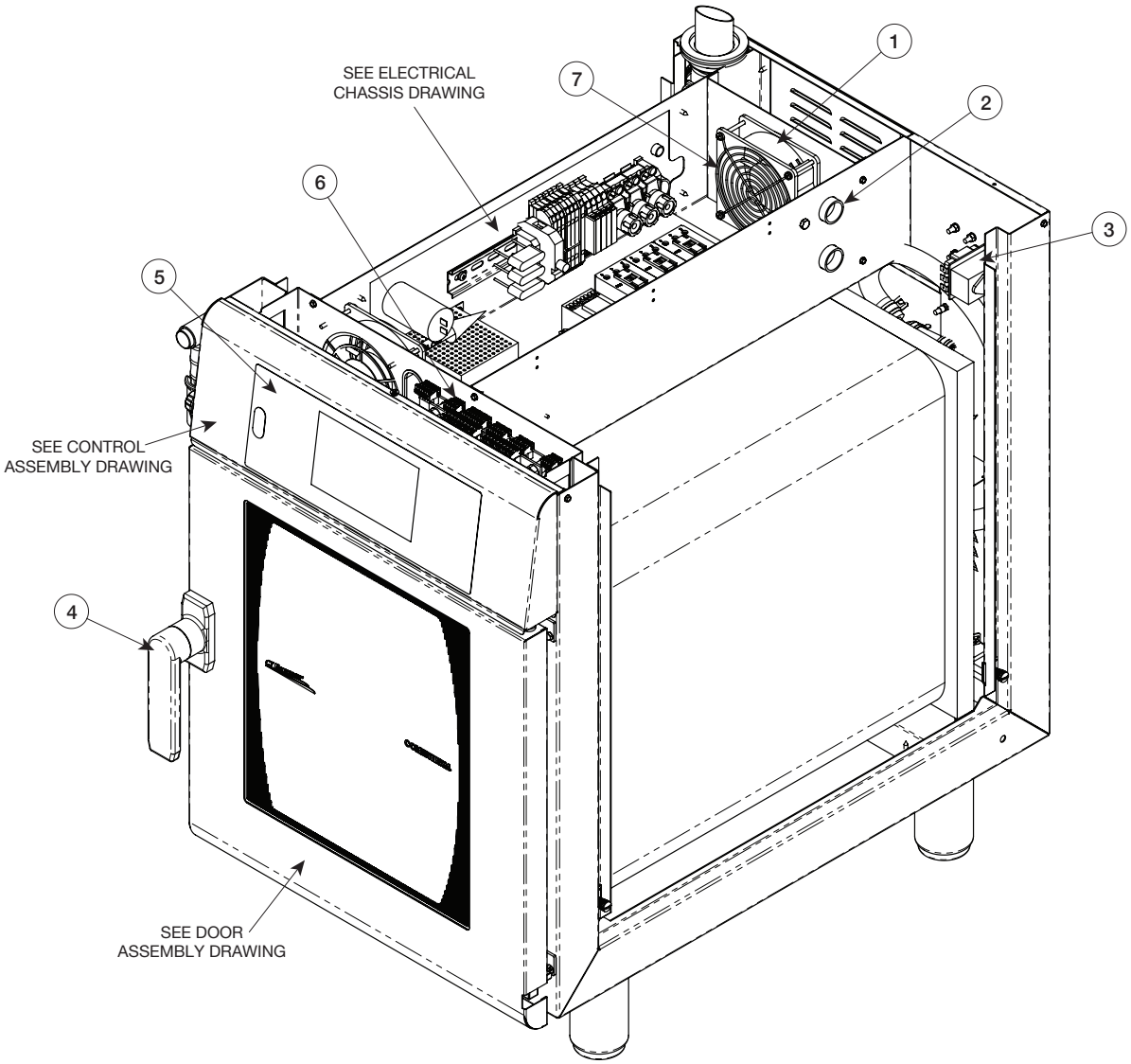


Item	Part	Description	Qty.
1	CB-34033	Cable, 20" (510mm) long	1
2	CV-23896	Cover, S/S Ring	1
3	5016140	Injection Tube, with Cleaning	1
	5016205	Injection Tube, without Cleaning	1
	SA-23934	Injection Tube Seal	1
4	1013034	Bracket	1
5	5014123	Gasket, Door	1
6	WH-29634	Fan Wheel, 197mm OD	1
7	1013935	Cover Plate	1
8	LG-29644	Legs, 4" Bullet	4
	LG-26867	Legs, 6" Bullet	4
	FT-29080	Feet, Seismic, 6"	4
9	5014033	Drip Tray Assembly	1

Item	Part	Description	Qty.
10	SR-29602	Side Rack, Wire, S/S	1
11	SH-2903	Shelf, S/S	1
12	LT-29636	Latch, Door	1
13	EL-29560	Element, Convection, 2 Coil, 1Ph	1
	EL-29649	Element, Convection, 3 Coil, 3Ph	1
14	GS-29818	Seal, Convection Element	1
15	1012798	Deflector Strip	1
16*	EL-35057	Broiling Element, 208-240V	1
	EL-36032	Broiling Element, 318-480V	1
17*	GS-35461	Broiling Element Gasket Seal	2
	GS-25662	Broiling Element Gasket Seal	1
18*	1013741	Broiling Element Bracket	1
19*	CN-3654	Broiling Element Contactor	1

*NOT SHOWN

TOP INTERIOR AND RIGHT SIDE

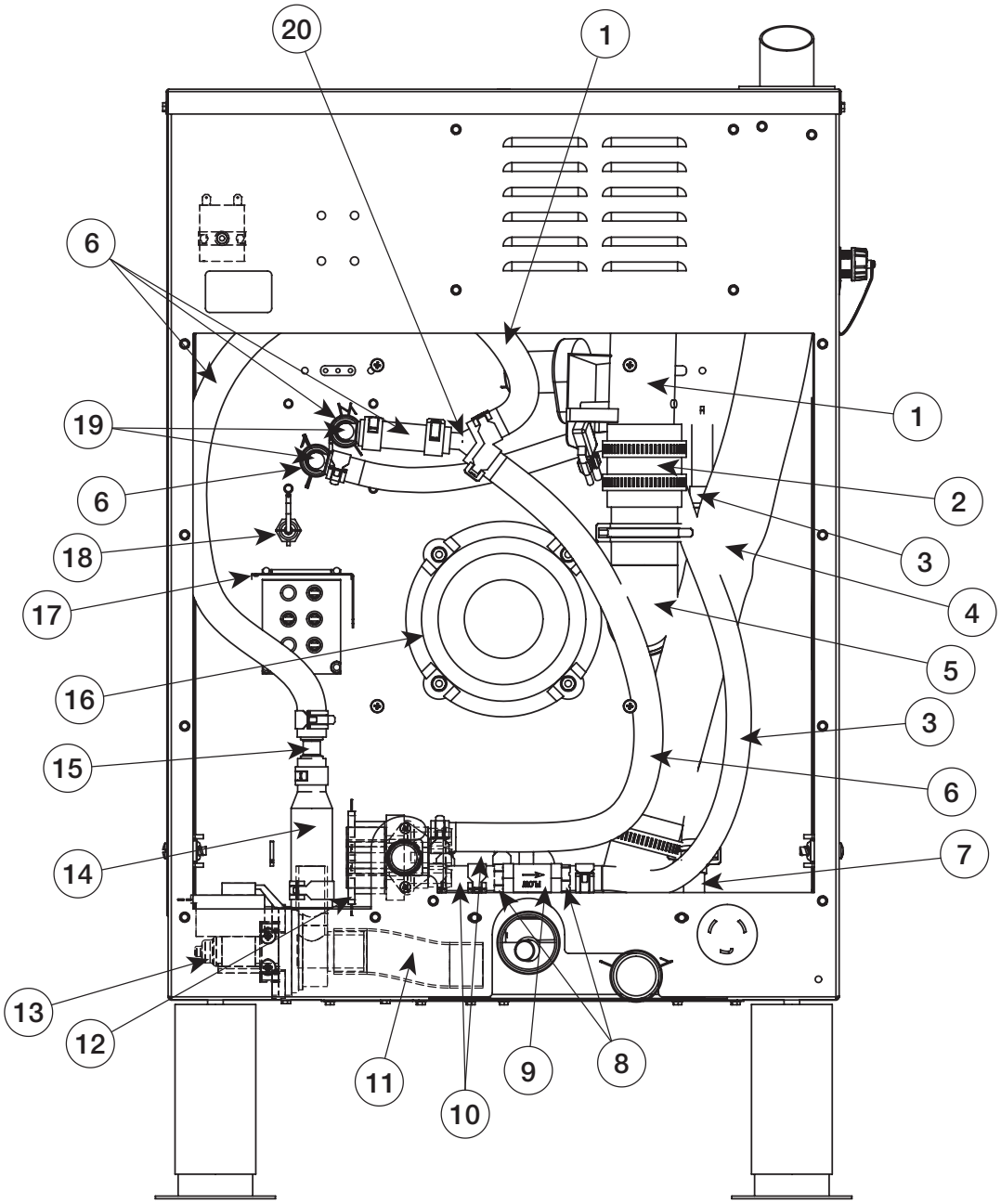


Right Side View

Item	Part	Description	Qty.
1	FA-36957	Fan, Box, 70CFM, 230V, 50-60Hz	1
2	BU-3378	Bushing, Snap, 1-1/8", Black	2
3	TT-3750	Thermostats, CT, Safety, 340°C, 208-240V	1
	TT-36204	Thermostat, Thermal, Cutout, 340°C Fail Safe Type, 380-415V	1
4	HD-29635	Handle, Door Pendulum	1
5	PE-29870	Panel Overlay for Touch Control	1
	PE-36835	Panel Overlay for Simple Control, after 09/14	1
	PE-29869	Panel Overlay for Simple Control, prior to 09/14	1
6	BA-34670	Board, Relay	1
7	GD-2396	Fan Guard	1

PARTS INFORMATION

INTERIOR REAR

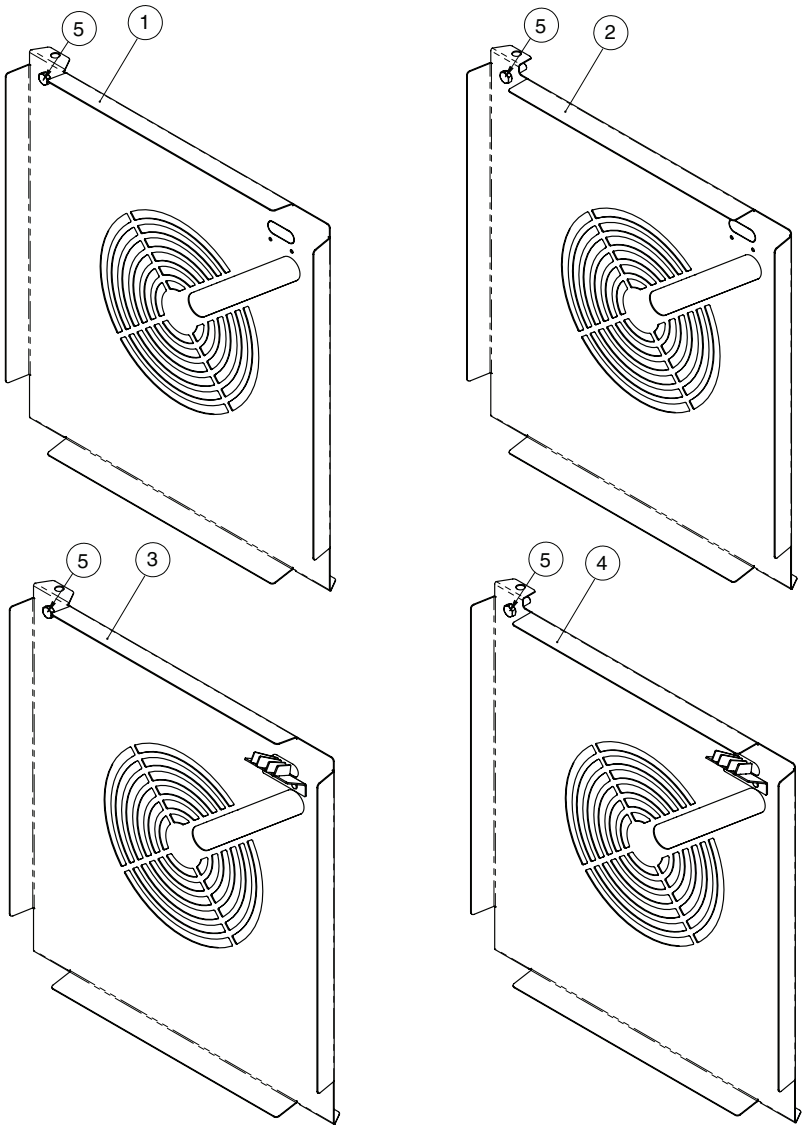


Item	Part	Description	Qty.
1	VA-26838	Valve, Baffle	2
2	HO-29435	Hose, 1-5/8"	*
3	HO-2957	Hose, Steam Bypass, .775 x .575 x .100	*
4	HO-29435	Hose, 1-5/8"	*
5	EB-27207	Elbow, 1-7/8" ID	1
6	HO-28790	Hose, 1/2"	*
7	EB-22221	Elbow, 0.62 Dia., Center R.875	1
8	FT-29124	Fitting, 1/2" Barb to 3/8" NPT	2
9	VA-29643	Valve, Flow Control, 0.06 GPM	1
10	HO-22255	Hose, 1/2" Flex, Clear, 2-3/4" Lg	*

Item	Part	Description	Qty.
11	HO-29667	Hose, Steam, 4" Long	*
12	VA-33723	Valve, Solenoid Triple	1
13	DA-24973	Drain, Pump, Steam Generator	1
14	PB-29289	Plumbing, Reducer Hose 7/8"	1
15	PB-29489	Coupler, 1/2" to 1/2", Straight	1
16	MO-29746	Motor, Fan Wheel, 230V	1
17	1012981	Cover, Element Splash	1
18	PR-33724	Probe, 1650mm Wire Length	1
19	EB-35867	Elbow, Barbed, 1/2" to 1/2"	2
20	PB-27838	Plumbing, Nylon, 1/2"	1

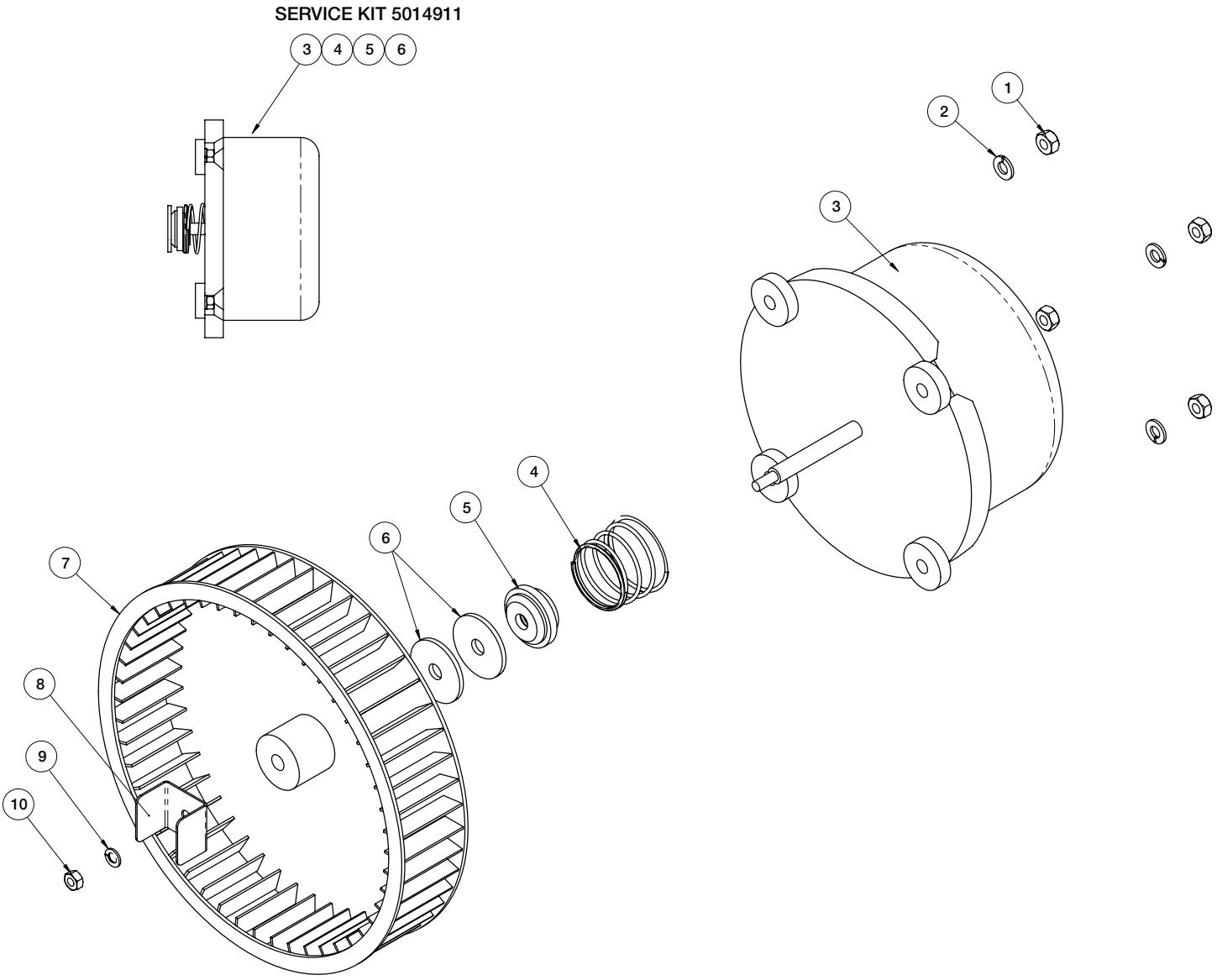
* order per foot

DIRECTIONAL PANEL ASSEMBLY



Item	Part	Description	Qty.
1	5016146	Directional Panel, no Cleaning	1
2	5016147	Directional Panel, no Cleaning, with Broiling Element	1
3	5016701	Directional Panel, with Cleaning	1
4	5016702	Directional Panel, with Broiling Element and Cleaning	2
5	SC-22924	Screw, M6 x 1.0 x 20mm Hex	1

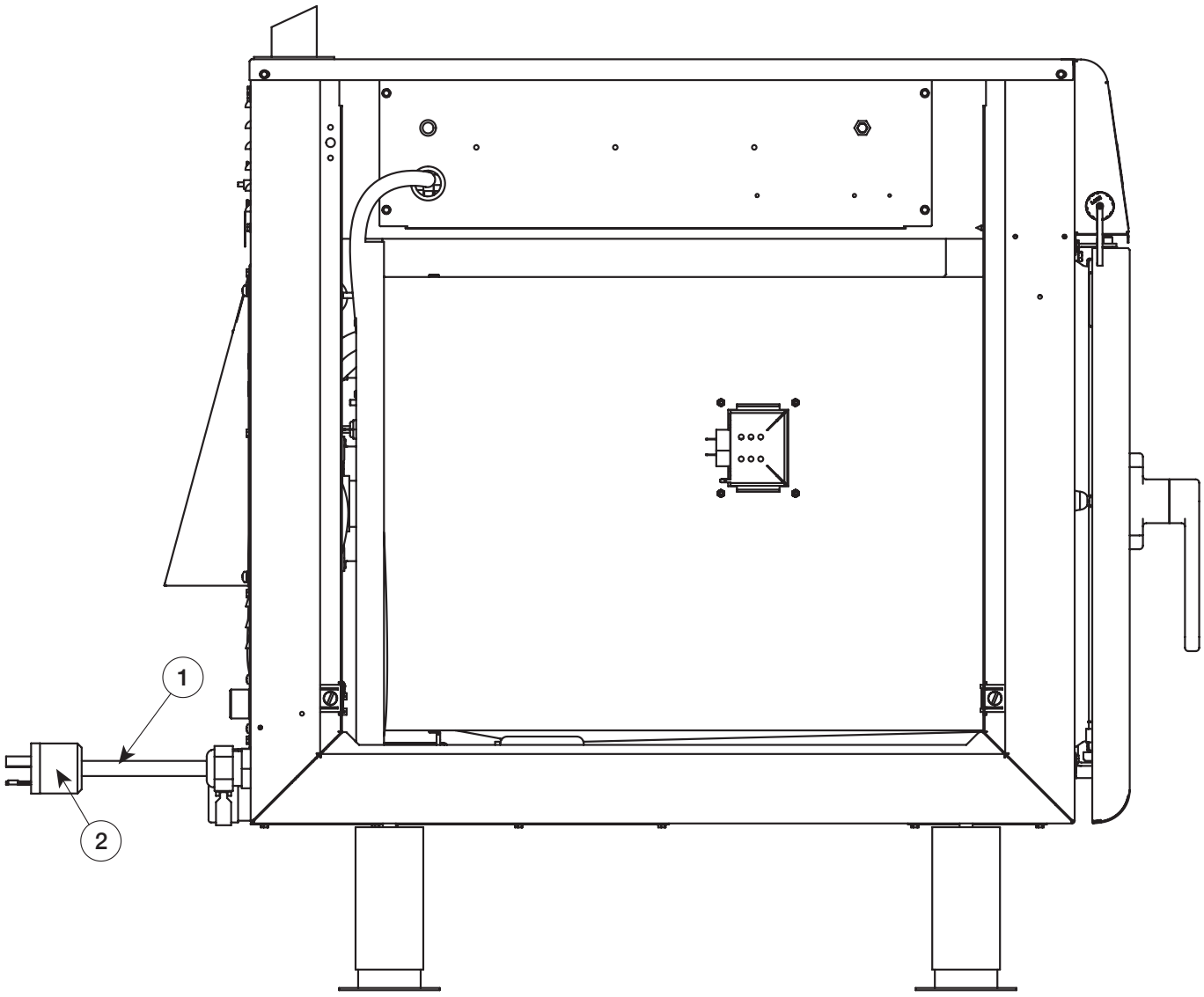
COMBITHERM MOTOR



Item	Part	Description	Qty.
1	NU-22291	Nut, M6-1.0 x Hex 18-8, S/S	1
2	WS-22302	Washer, Split Lock	1
3**	MO-29746	Motor, 230V, 2 Speed	1
4**	SD-23939	Spring	1
5**	BU-29663	Bushing, Motor Shaft	1
6**	WS-29661	Washer, Motor Shaft Seal	2
7	WH-29634	Wheel, Fan, 197mm OD	1
8	1013034	Bracket, Disintegration Box	4
9	WS-22301	Washer, M5 Split Lock	1
10	NU-22289	Nut, M5-0.8 Hex Nut, 18-8 Din #934	1

**INCLUDED IN SERVICE KIT 5014911

ELECTRICAL CORD & ROUTING (AVAILABLE ONLY ON 208V, 1PH MODELS)

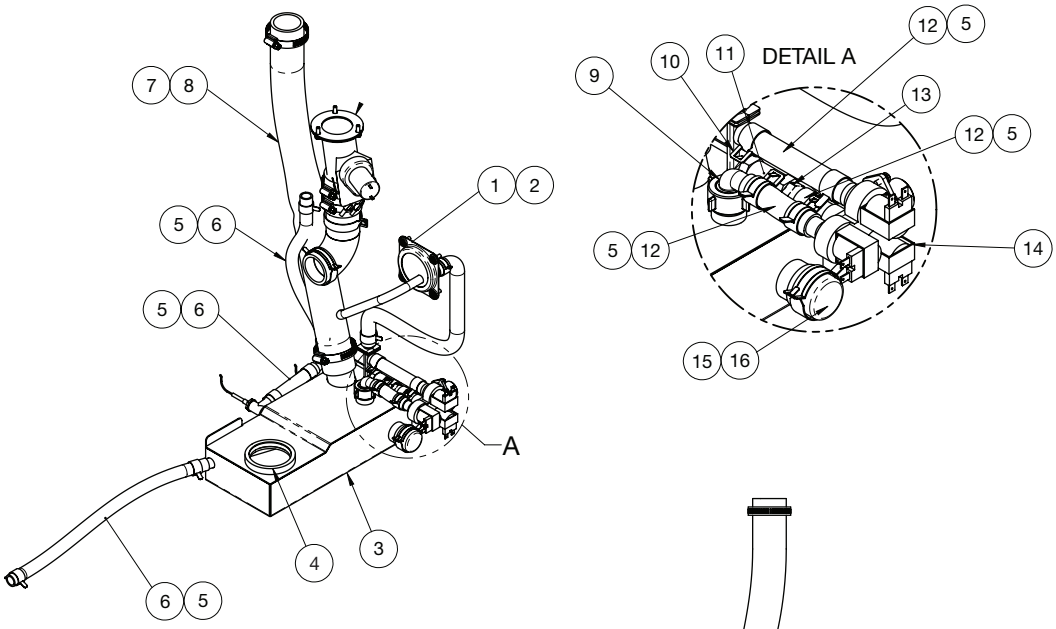


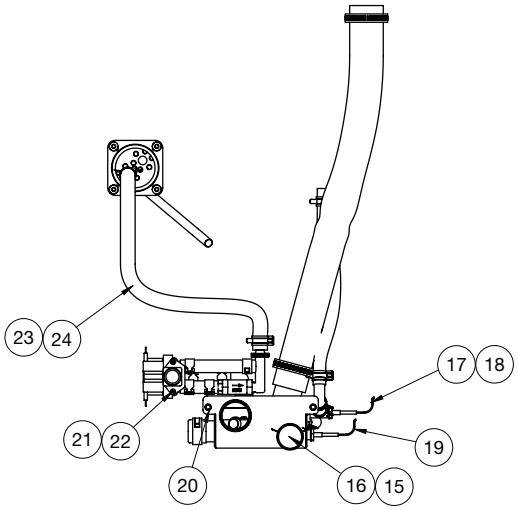
Item	Part	Description	Qty.
1	CD-3304	Cord, 208V, 1PH, 60Hz Only, 10 Gauge, 3 Conductor	1
	CD-36230	Cord, 208-240V, 1PH, 50Hz Only	1
2	PG-34207	Plug, 208V, 1PH, 60Hz Only	1

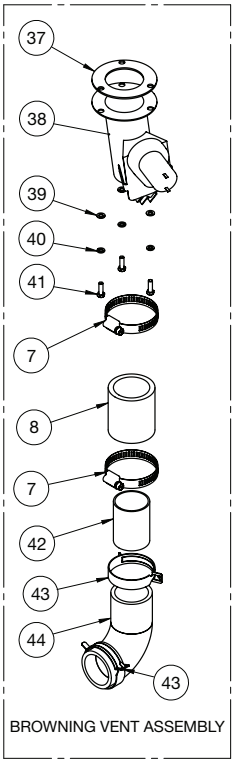
*NO CORD/PLUG (ALL OTHER MODELS)

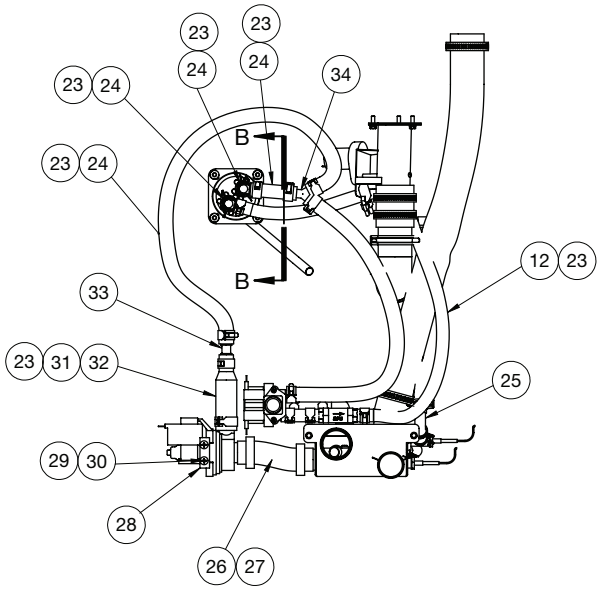
PARTS INFORMATION

PLUMBING

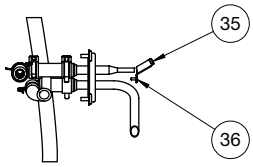




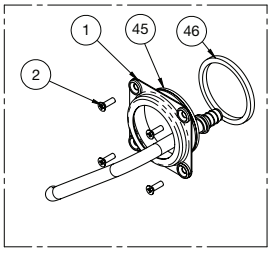




SHOWN WITH CLEANING



SECTION B-B



INJECTION TUBE ASSEMBLY

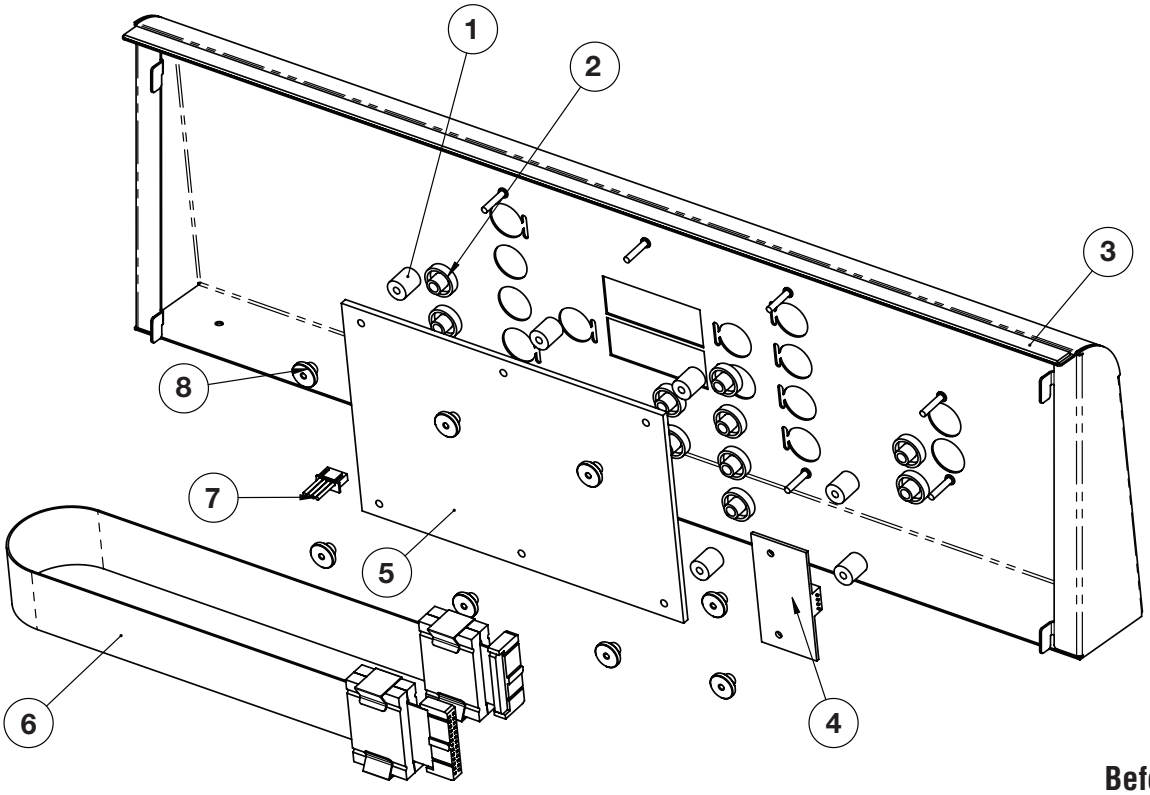
PLUMBING

Item	Part	Description	Qty.
1	CV-23896	Cover, ML, S/S Ring, Light Coved Corner	1
2	SC-22281	Screw, M5 x 0.8 x 16mm Flat	4
3	5013627	Condensor Tank Weld	1
4	SA-22212	Condensate Seal	1
5	CM-28145	Clamp, Hose, 20mm	12
6	HO-2957	Hose, Translucent Silicon	1
7	CL-22234	Clamp, Worm Gear, 40-60, Hose - without cleaning	2
		Clamp, Worm Gear, 40-60, Hose - with cleaning	4
8	HO-29435	Hose, 1 5/8" ID	1
9	HO-22116	Fitting, Elbow, 90 Deg.	1
10	PB-29162	Manifold, Injection Tube	1
11	VA-29643	Valve, Flow Control, 0.06 GPM	1
12	HO-22255	Hose, 1/2" Flex, Clear	1
13	FT-29124	Fitting, 1/2" Barb to 3/8" NPT Adaptor	1
14	VA-33723	Valve, CT, Solenoid Triple	1
15	CM-29038	Clamp, Hose, 38mm	2
16	CP-29648	Cap, Push-on, Fits on 1-1/4" OD	2
17	SA-25061	Probe Seal	1
18	PR-33751	Probe, B5 Bypass	1
19	PR-33751	Condensate Probe	1
20	SC-29871	Screw, #8 x 1/2" Hex FLg	2
21	WS-22300	Washer, Split Lock	2
22	SC-22273	Screw, M4 x 0.7 x 10mm Pan	2
23	CM-29301	Clamp, Hose, 23mm - without cleaning	2
		Clamp, Hose, 23mm - with cleaning	11
24	HO-28790	Hose, 1/2" ID, Hi-Temp	1
25	EB-22221	Elbow, 0.63 Dia., Center R.875	1
26	HO-29667	Hose, Steam, 4.5" Lg	1
27	CM-22794	Clamp, Gear, HSS, 20 S/S, Range 3/4"-1-3/4"	2
28	DA-24973	Pump, Cleaning	1
29	WS-22302	Washer, Split Lock	2
30	SC-27078	Screw, M6 x 1.0 x 10mm Pan	2
31	CM-29037	Clamp, Hose, 32mm	1
32	PB-29289	Reducer, 7/8" x 1/2"	1
33	PB-29489	Coupler, 1/2" to 1/2"	1
34	PB-27838	Plumbing, Nylon, 1/2" Y	1
35	5016164	Cleaning Deflector Weld Assembly	1
36	RI-27108	Rivet, Sealed	2
37	SA-26890	Seal, Vent Motor	1
38	VA-26838	Vent Motor	1
39	WS-22295	Washer, Flat M5 S/S	3
40	WS-22301	Washer, M5 Split Lock S/S 18-8	3
41	SC-22926	Screw, M5 x 0.8 x 16mm, Hex	3
42	FT-27406	Coupling w/o. Stop, 1.5"	1
43	CM-29039	Clamp, Hose, 55mm	2
44	EB-27207	Washer, Drain Support	1
45	5016205	Injector Tube Weld Assembly - without Cleaning	1
	5016140	Injection Tube Weld Assembly - with Cleaning	1
46	SA-23934	O-Ring, Light	1
47*	EB-35867	Elbow, Barbed, 1/2" to 1/2"	2

*NOT SHOWN

PARTS INFORMATION

CONTROL ASSEMBLY - SIMPLE

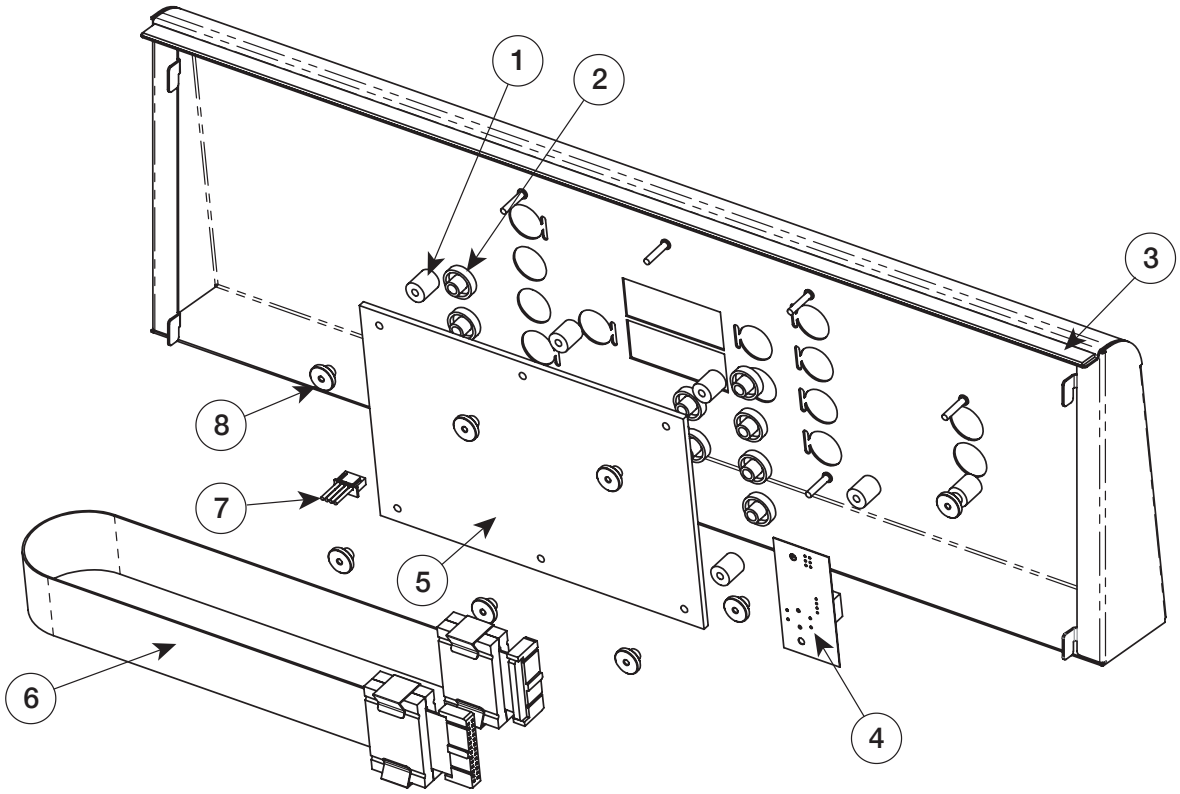


Before 09/14

67451

Item	Part	Description	Qty.
1	BU-25094	Bushing, Brass, Distance	8
2	CP-25405	Cap, 15mm Dia. x 8.5mm Button	13
3	GS-23622	Gasket, Foam 20" length	1
4	BA-34778	Board, On/Off	1
5	CC-29772	Control Assembly, Simple	1
6	CB-34033	Cable, Communication, 510mm	1
7	CB-29873	Cable, On/Off Board	1
8	NU-25095	Nut, Knurled, M3, High, A2, S/S	8

CONTROL ASSEMBLY - SIMPLE



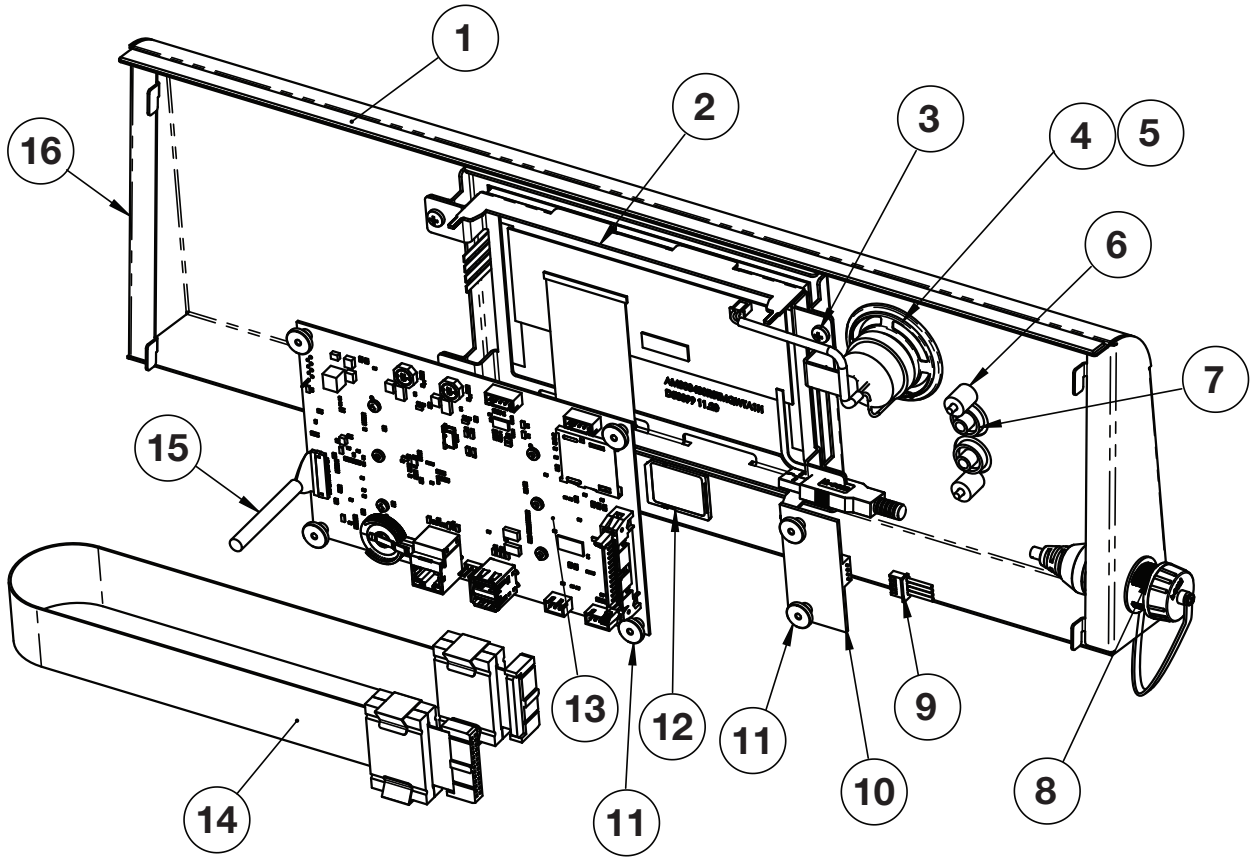
After 09/14

67451

Item	Part	Description	Qty.
1	BU-25094	Bushing, Brass, Distance	8
2	CP-25405	Cap, 15mm Dia. x 8.5mm Button	11
3	GS-23622	Gasket, Foam 20" length	1
4	CC-36871	Board, On/Off	1
5	CC-29772	Assembly, Control Simple Basic	1
6	CB-34033	Cable, Communication, 510mm	1
7	CB-29873	Cable, On/Off Board	1
8	NU-25095	Nut, Knurled, M3, High, A2, S/S	8

PARTS INFORMATION

CONTROL ASSEMBLY - EXPRESS TOUCH

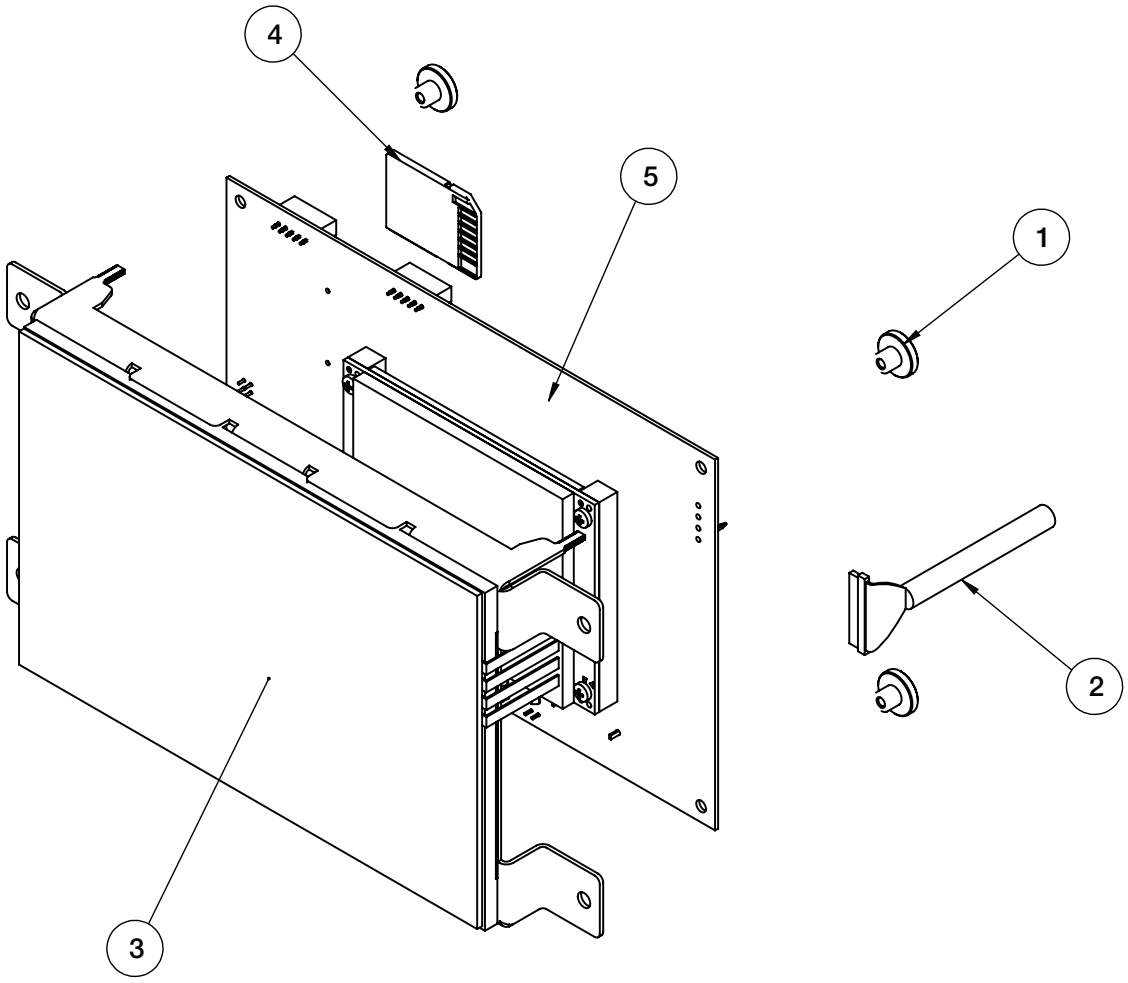


66455

Item	Part	Description	Qty.
1	GS-23622	Gasket, Foam 20" Length	1
2	5014562	Display Mounting Bracket Assembly	1
3	SC-22271	Screw, M4 x .07 x 6 mm Pan	4
4	BZ-34675	Buzzer, Speaker, IND Rated 8 Ohm	1
5	CB-34914	Cable, Speaker, Board, Touch	1
6	BU-25094	Bushing, Brass, Distance	2
7	CP-25405	Cap, 15mm Dia. x 8.5mm Button	2
8	5014750	HACCP Pkg w/ USB Port	1
9	CB-29873	Cable, On-Off Board	1
10	BA-34778	Board, On/Off, Touch Screen	1
11	NU-25095	Nut, Knurled M3 High A2 S/S	6
12	BA-35138	Compact Flash Card	1
13	BA-29719	Board, Control Interface	1
14	CB-34033	Cable, Communication, 510mm	1
15	CB-29872	Cable, LVDS, Express Touch	1
16*	5014363	Control, Spot Assy, RH, S/S	1
	5015265	Control, Spot Assy, LH, S/S	1
17*	PE-29870	Panel Overlay, Express Touch	1
18*	5015926	Touch Conrol Replacement Kit	1

*NOT SHOWN

TOUCH CONTROL REPLACEMENT KIT (EXPRESS TOUCH ONLY)

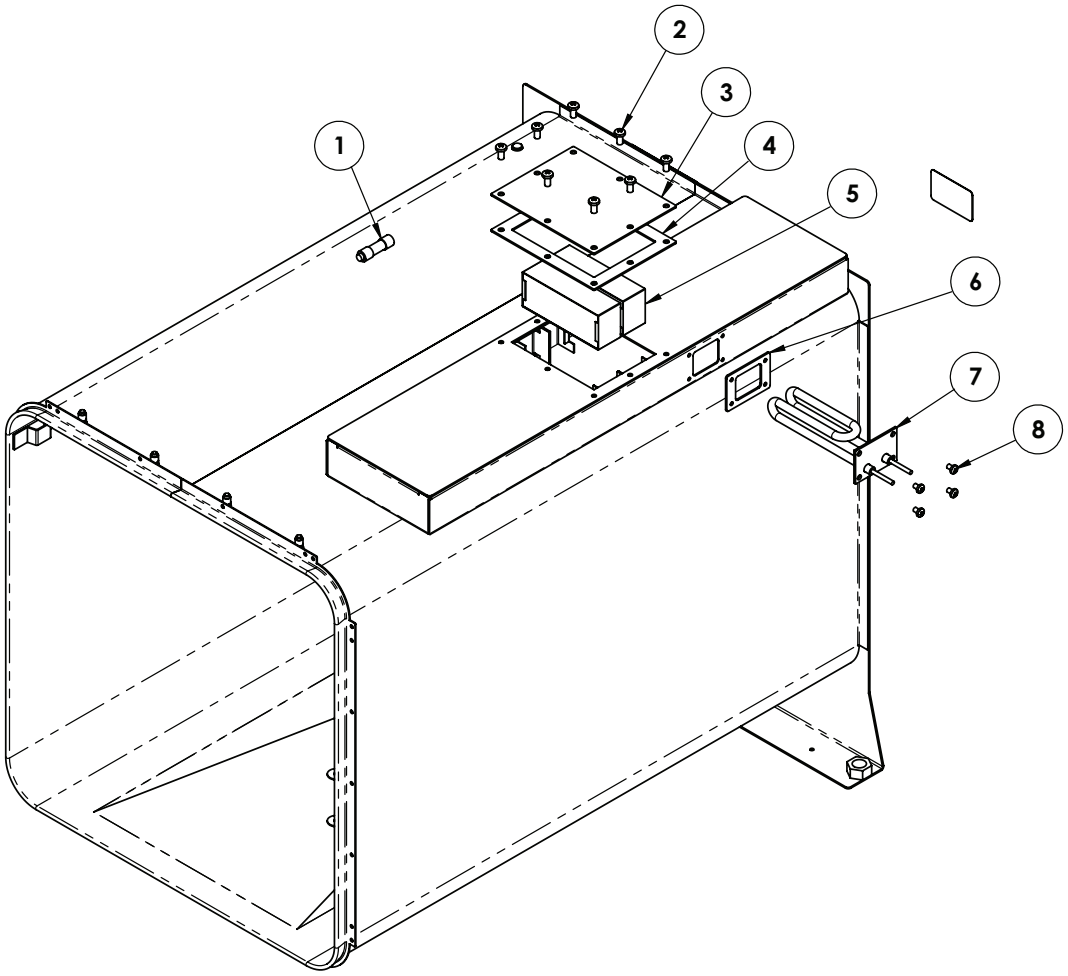


Control Replacement Kit - 5015926

Item	Part	Description	Qty.
1	NU-25095	Nut, Knurled, M3 High A2 S/S	4
2	CB-29872	Cable, LVDS, Express Touch	1
3	5014562	Display Mounting Bracket Assembly	1
4	BA-35138	Board, Compact Flash	1
5	BA-29719	Board, Interface	1

PARTS INFORMATION

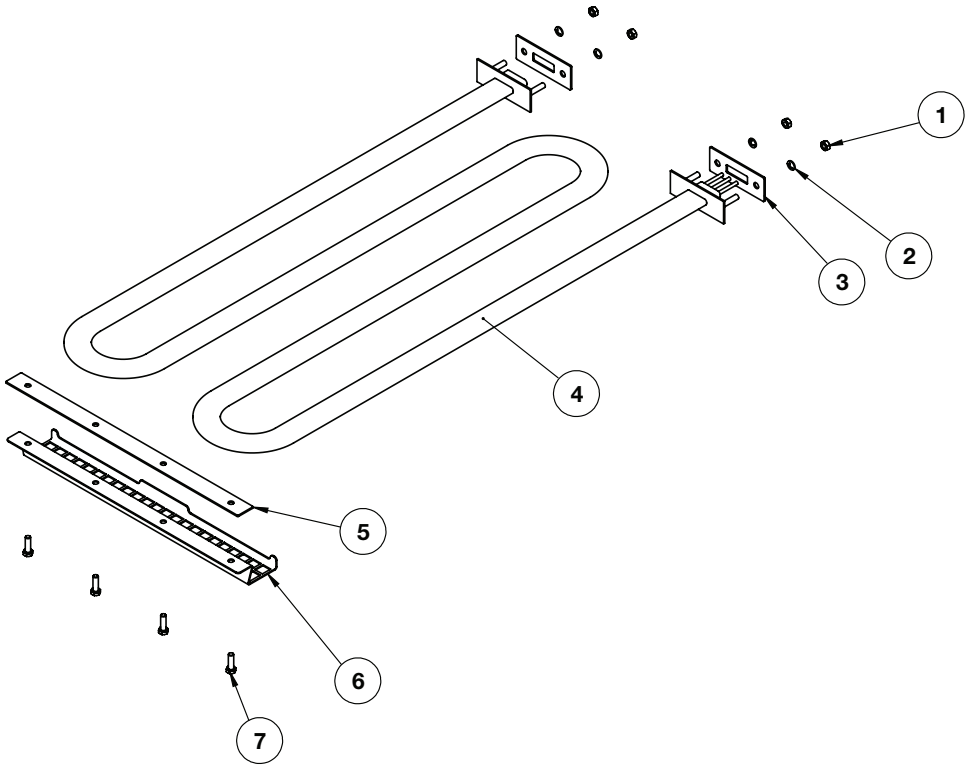
CATALYTIC CONVERTER



67780

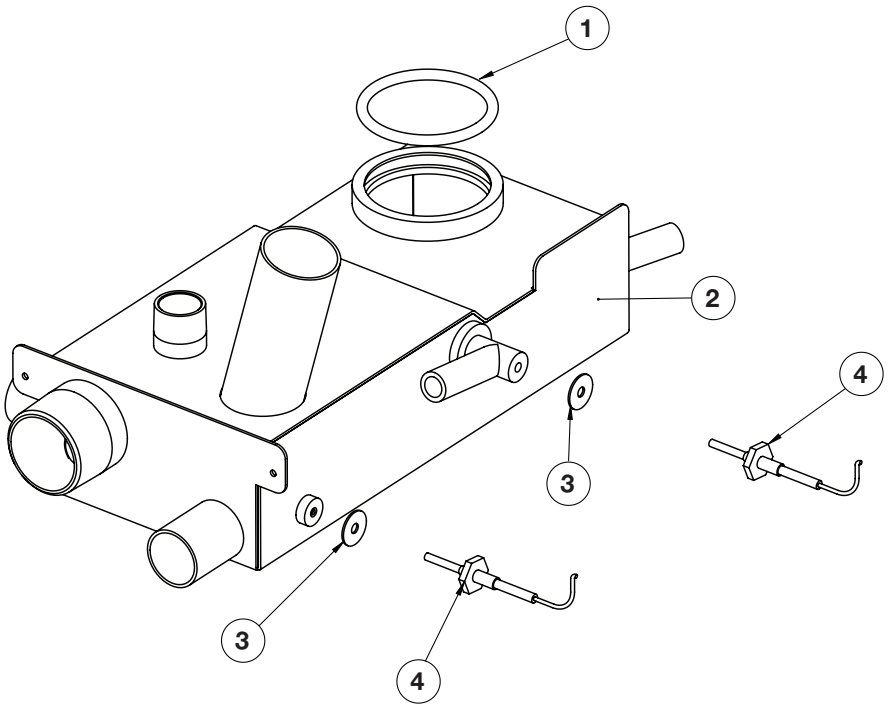
Item	Part	Description	Qty.
1	FU-34938	Fuse, 3 Amp	1
2	SC-22766	Screw, M4 x 0.8 x 10mm Pan	8
3	1014243	Cover	1
4	GS-35495	Gasket Seal	1
5	FI-29651	Filter	2
6	GS-35494	Gasket Seal	1
7	EL-35051	Element, Heater	1
8	SC-22271	Screw, M4 x 0.7 x 10mm Pan	4

BROILING ELEMENT



Item	Part	Description	Qty.
1	NU-22289	Nut, M5-0.8 Hex Nut 18-8 din #934	4
2	WS-22301	Washer, M5 Split Lock	4
3	GS-35461	Gasket, Element Seal	2
4	EL-35057	Element, 208-240V	1
	EL-36032	Element, 380-415V	1
5	GS-35662	Gasket, Seal, Mounting Bracket	1
6	1013741	Bracket, Broiling Element	1
7	SC-22926	Screw, M5 x 0.8 x 16mm, Hex	4

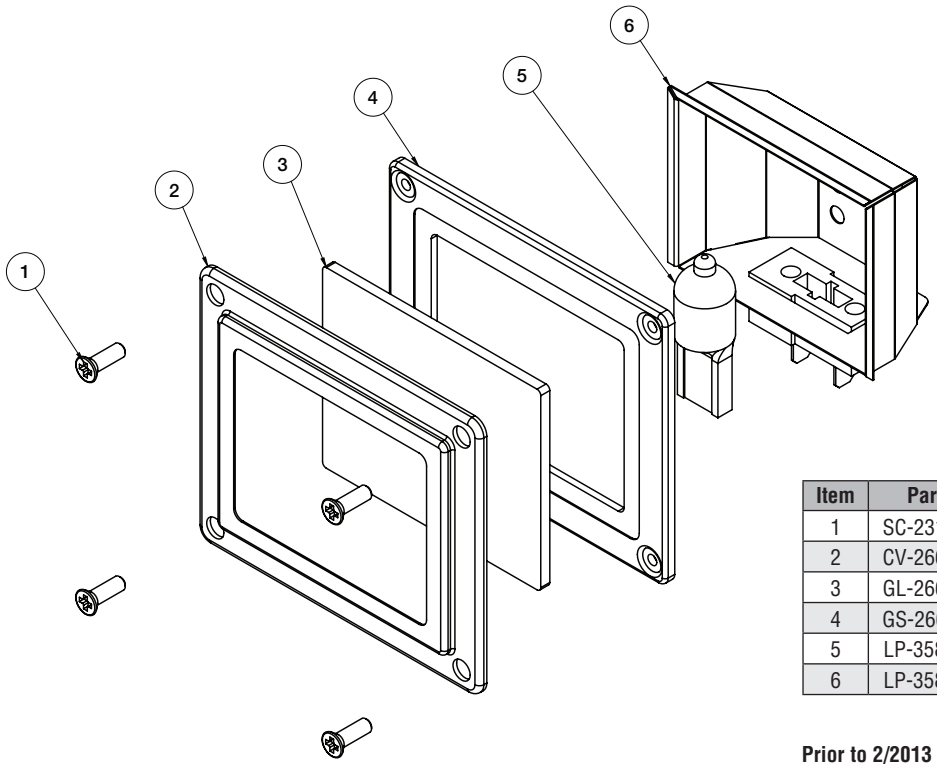
CONDENSOR TANK



5013628

Item	Part	Description	Qty.
1	SA-22212	O-Ring, Red, Silicone 70 Dur., 225C, 59.6mm x 5.33mm	1
2	5013627	Condensor Tank Weld Assembly	1
3	SA-25061	Seal, T-Couple Probe	2
4	PR-33751	Probe, Thermocouple 3050mm Wire Length	2

LAMP ASSEMBLY



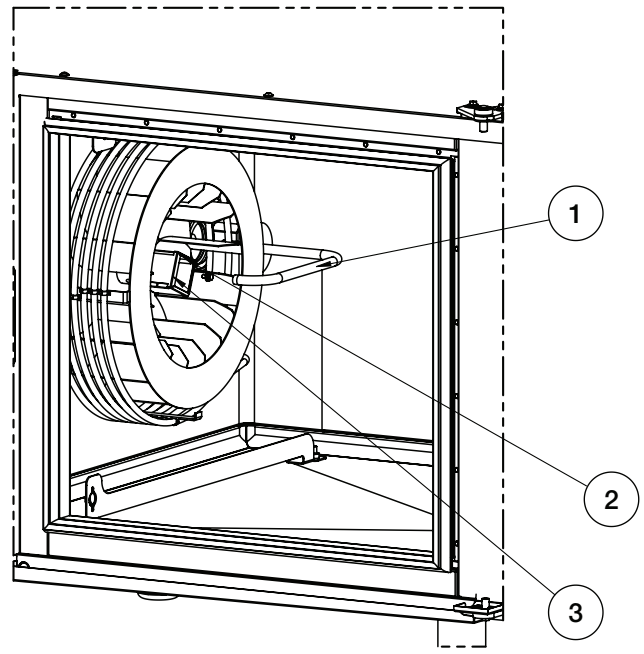
5016299

Item	Part	Description	Qty.
1	SC-23141	Screw	4
2	CV-26607	Oven Light Cover	1
3	GL-26608	Oven Light Glass	1
4	GS-26609	Oven Light Gasket	1
5	LP-35865	Light, 40W Bulb	1
6	LP-35866	Light, Snap-In receptacle	1

Prior to 2/2013 (NOT interchangeable with LP-35865 and LP-35866)

Item	Part	Description	Qty.
5	LP-34206	Light, 40W Bulb	1
6	LP-34161	Light, Snap-In receptacle	1

INNER TUBE & WASH NOZZLE

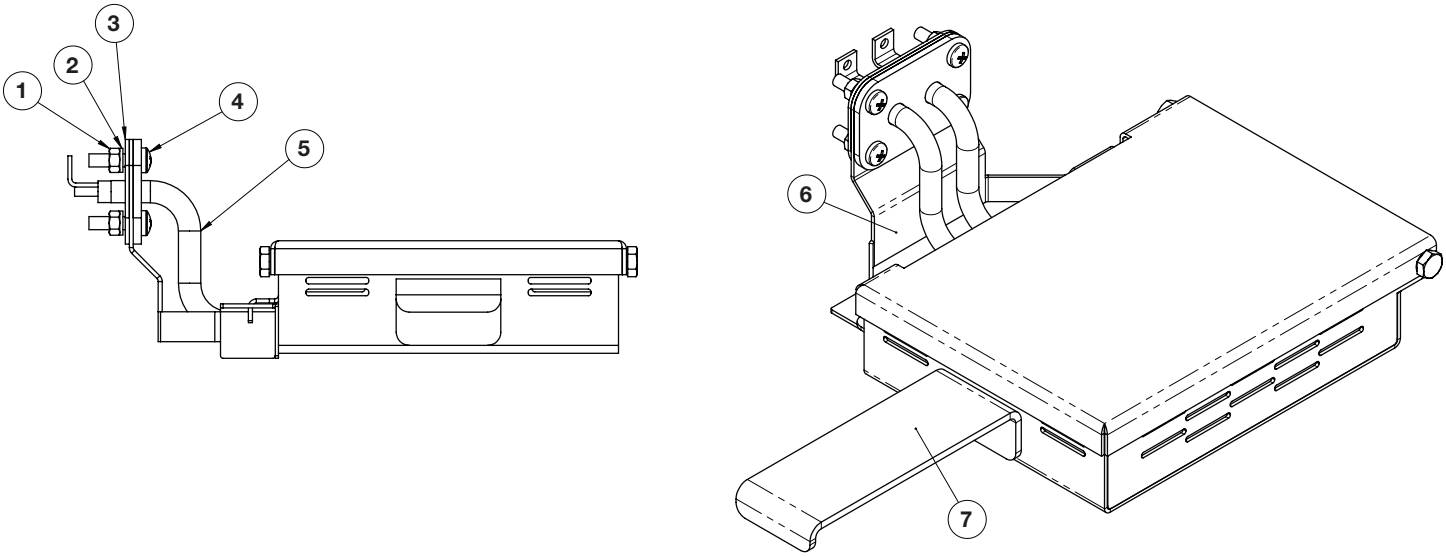


Item	Part	Description	Qty.
1	5016140	Water Injection Tube, with Clean	1
	5016205	Water Injection Tube, without Clean	1
2	1013034	Disintegration Bracket	1
3	NU-22289	Nut, M5 Hex	1

See Motor page for detailed drawing

PARTS INFORMATION

SMOKER CHIP TRAY ASSEMBLY

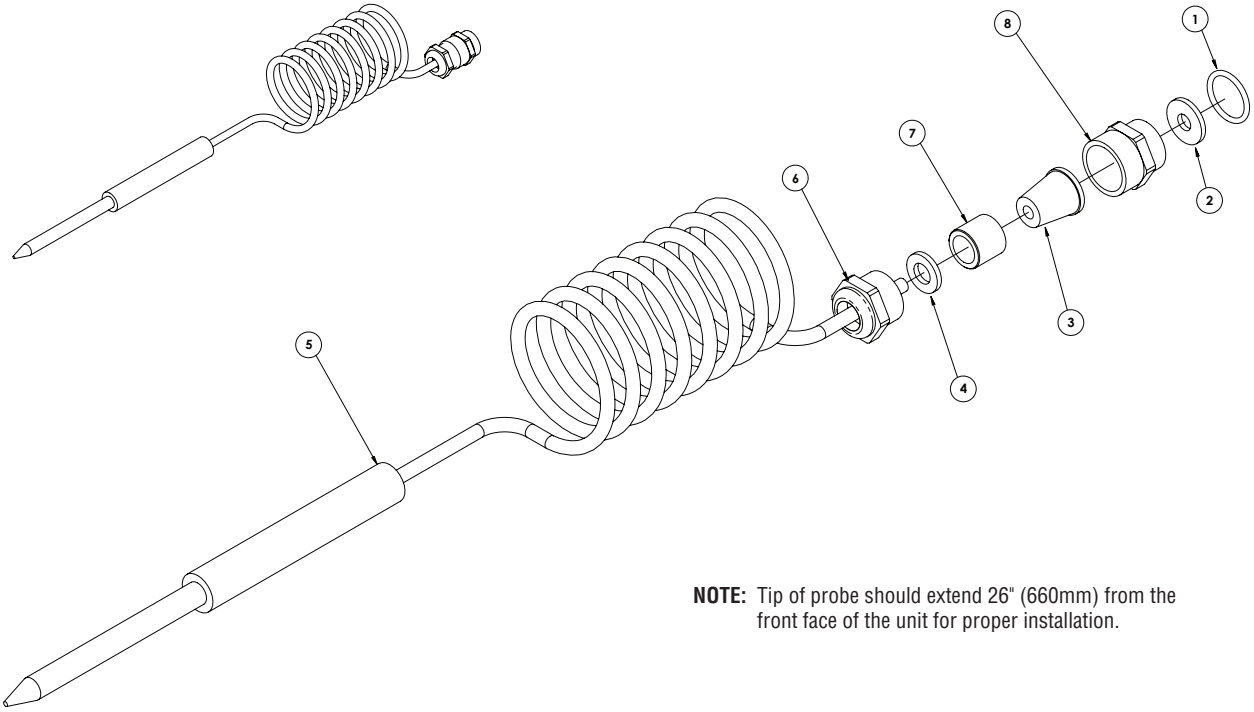


5015597

Item	Part	Description	Qty.
1	NU-22289	Nut, M5-0.8 Hex 18-8 Din #934	4
2	WS-22301	Washer, M5 Split Lock S/S 18-8	4
3	GS-35229	Gasket, Seal, Smoker Element	1
4	SC-22779	Screw, M5 x 0.8 x 20mm Pan	4
5	EL-35216	Element	1
6	5015311	Smoker Bracket	1
7	5015596	Smoker Box	1
8*	WC-22540	Wood Chips, Cherry, 2 lb. bag	1
9*	WC-22542	Wood Chips, Apple, 2 lb. bag	1
10*	WC-22544	Wood Chips, Sugar Maple, 2 lb. bag	1
11*	WC-2828	Wood Chips, Hickory, 2 lb. bag	1
12*	FU-34784	Fuse, Smoker, 5 Amp	1
	FU-33452	Fuse, Smoker, 6.3 Amp - 380-415V	1

*NOT SHOWN

OPTIONAL SINGLE POINT PROBE ASSEMBLY



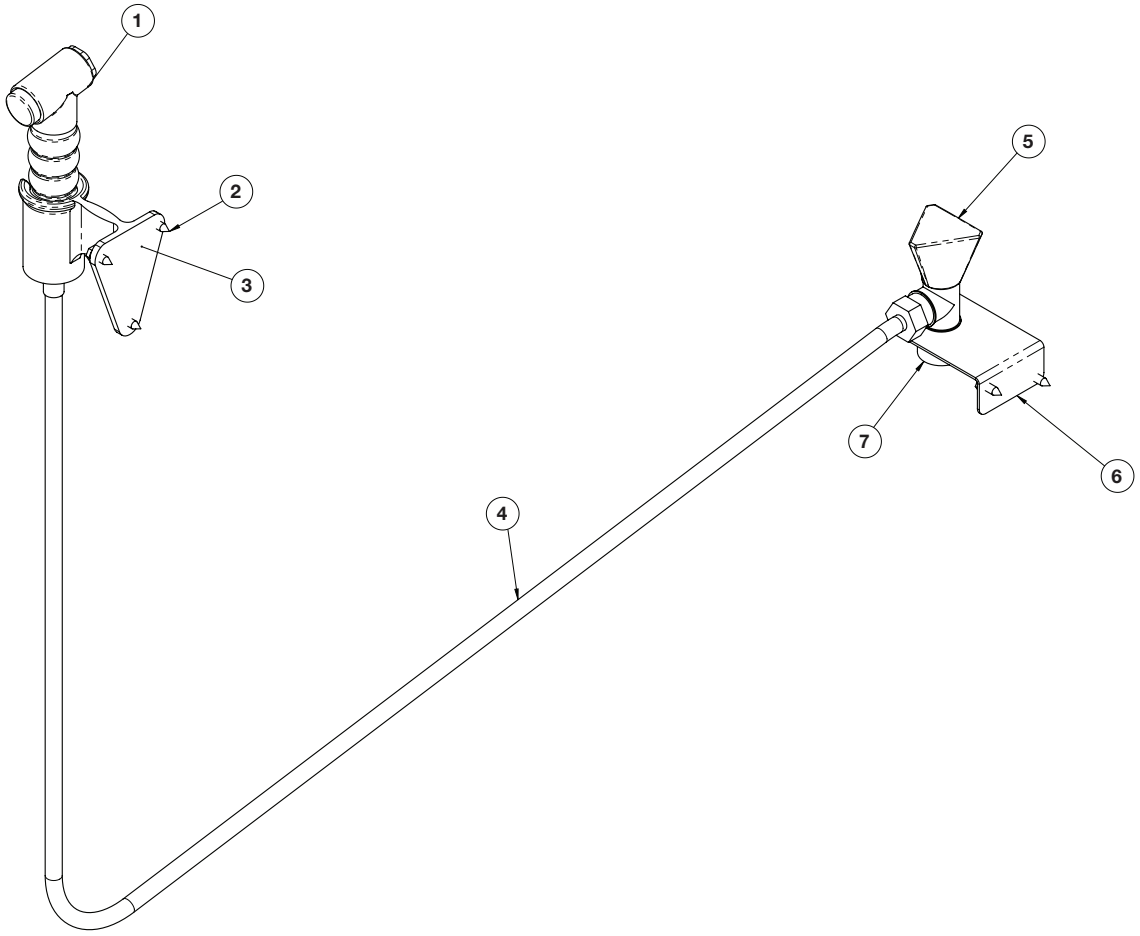
NOTE: Tip of probe should extend 26" (660mm) from the front face of the unit for proper installation.

5014297

Item	Part	Description	Qty.
1	SA-22199	Seal, O-Ring	1
2	WS-22323	Washer, Flat	1
3	SA-22322	Seal, Insert, 4mm Dia.	1
4	WS-22297	Washer, Flat	1
5	PR-29650	Probe, 1300mm length	1
6	SA-22320	Seal, Top, PG9	1
7	SA-22321	Seal, Cone, PG9, Brass	1
8	PG-3826	Plugs, Adaptor, tube to plug	1

PARTS INFORMATION

OPTIONAL HAND SHOWER ASSEMBLY

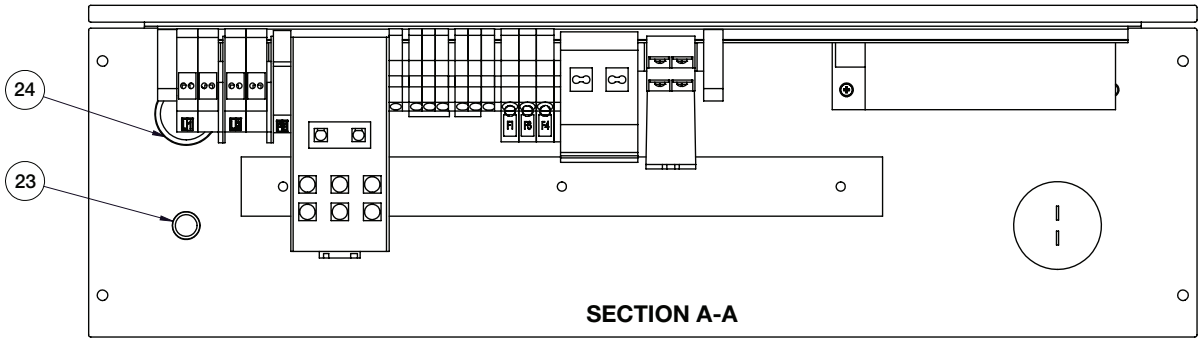


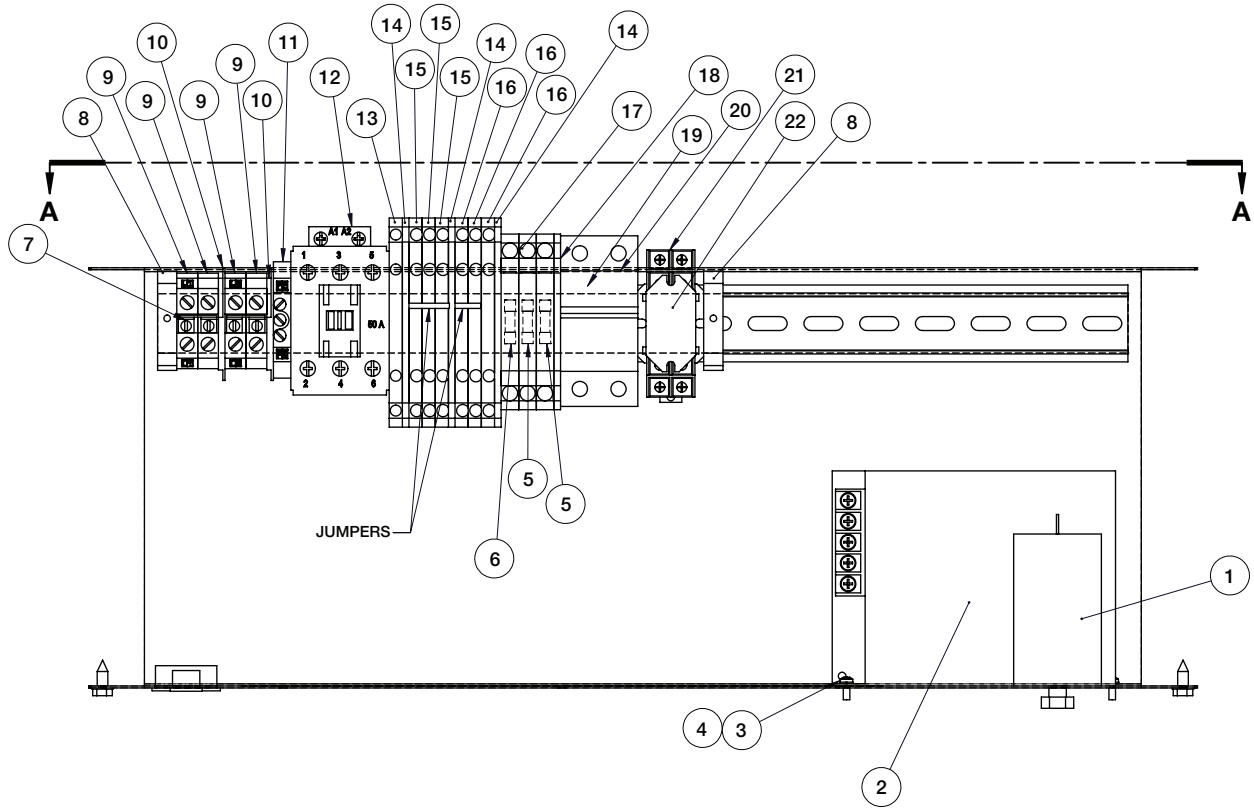
5014743

Item	Part	Description	Qty.
1	PB-29664	Plumbing, Hand Sprayer	1
2	SC-29871	Screw, #8 x 1/2" Hex Flg	1
3	HL-29741	Holder, Hand Sprayer	1
4	HO-29669	Hose, Hand Sprayer	1
5	VA-29646	Valve, Hand Sprayer Shut-Off	1
6	1012645	Bracket, Mount Shut-Off Valve	1
7	PB-35228	Plumbing, 3/4" GHT (M) to 1/2" NPT (F)	1

ELECTRICAL ASSEMBLY - SIMPLE CONTROL - 208V 1PH & 240V 1PH

(5013817 shown)





Item	Part	Description	Qty.
1	CU-29666	Capacitor, 16uF	1
2	BA-34508	Board, Power Supply, 40 Watt, 12V.DC	1
3	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
4	WS-22299	Washer, Split Lock	2
5	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
6	FU-33452	Fuse, Neozed, 6.3 Amp	2
7	TM-33675	Jumper Strip	2
8	TM-34305	Terminal, Screwless End	2
9	TM-3779	Terminal Block	4
10	TM-3785	Partition	2
11	TM-3932	Terminal, Ground	1
12	CN-3731	Contactor, 50 Amp	1
13	TM-34306	Terminal, Ground, 6mm, Spring	1
14	TM-34309	Terminal, End Section, Spring	3

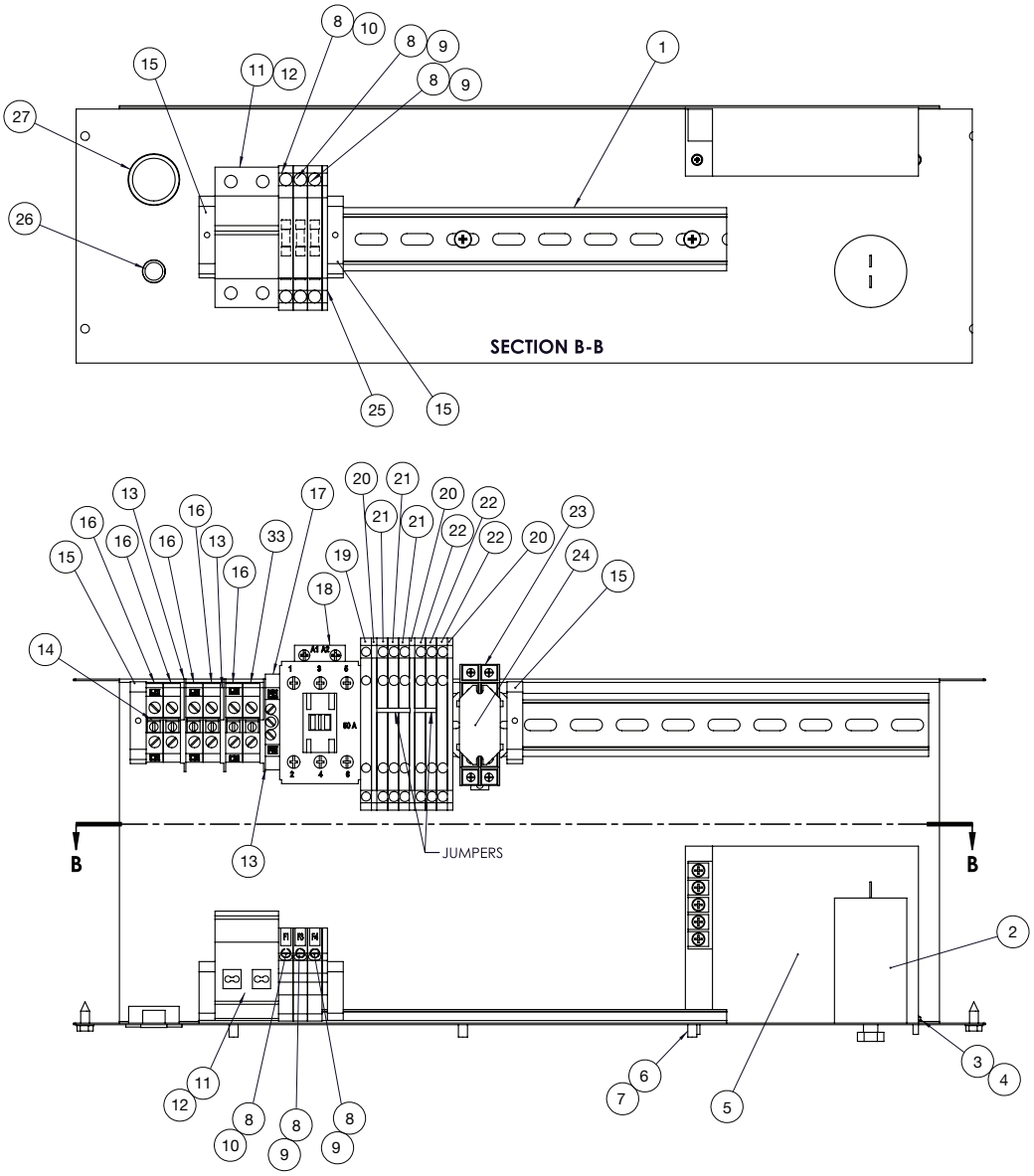
Item	Part	Description	Qty.
15	TM-34308	Terminal, 6mm, Blue, Spring	3
16	TM-34307	Terminal, 6mm, Orange, Spring	3
17	TM-34311	Terminal, Fuse Holder, 8mm	3
18	TM-34315	Terminal, End Plate	1
19	FU-35680	Fuse, 6.25 Amp	1
20	FU-34771	Fuse Holder, 2 Bank	1
21	RL-34634	Universal Mounting Socket	1
22	RL-33483	Relay, 240V LY1F	1
23	BU-3006	Bushing, 1/2" Hole	1
24	BU-3378	Bushing, 1-1/8" Snap	1
25*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
26*	TM-34310	Jumper Bar	1
27*	5013818	Elec. Chassis Rail, Spot Assembly	1

*NOT SHOWN

PARTS INFORMATION

ELECTRICAL ASSEMBLY - SIMPLE CONTROL - 208-240V 3PH

(5014568 shown)

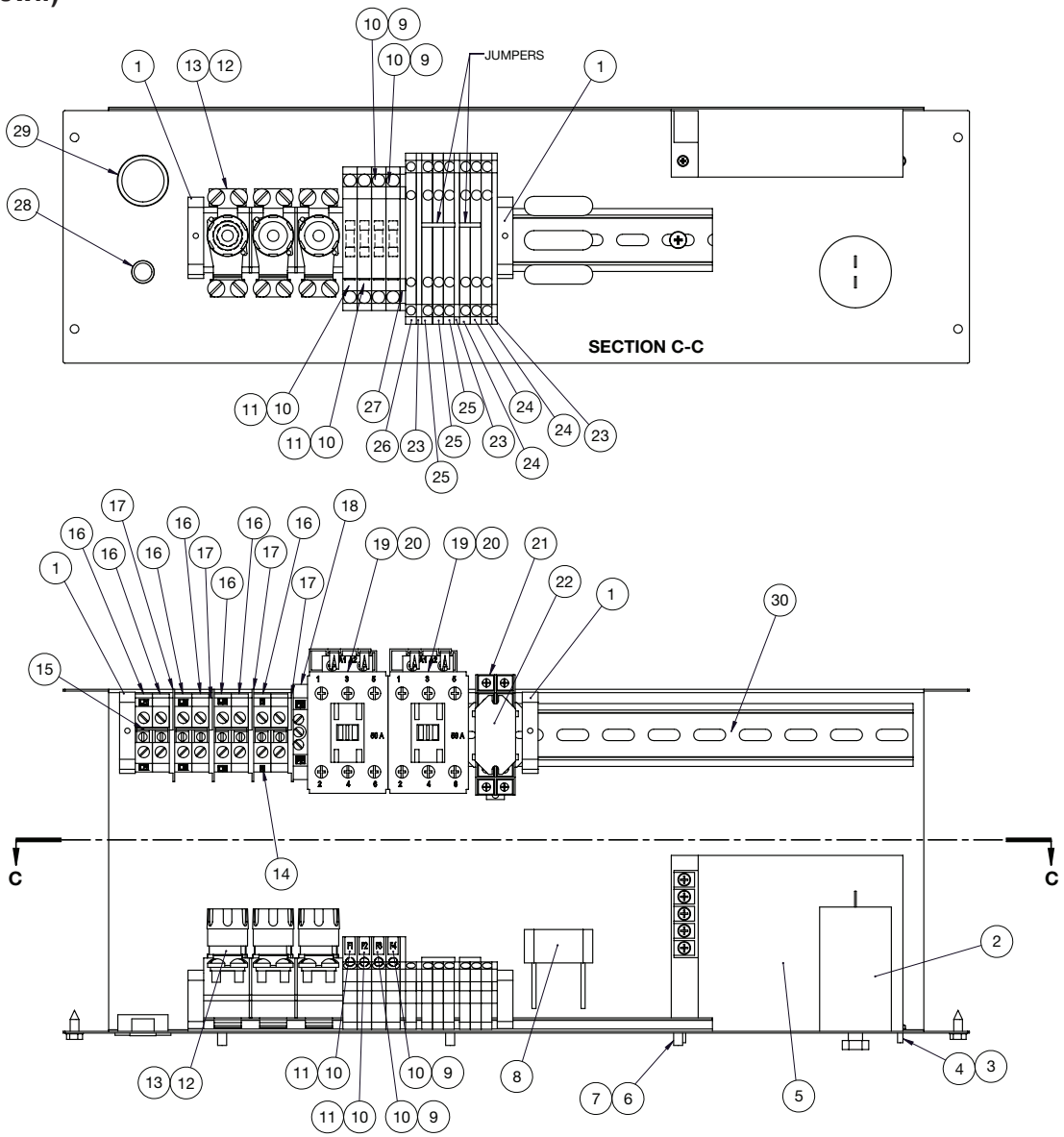


Item	Part	Description	Qty.
1	1009584	Din Rail 11-1/2"	1
2	CU-29666	Capacitor, 16uF	1
3	WS-22299	Washer, Split Lock	2
4	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
5	BA-34508	Board, 40 Watt Power Supply, 12V.DC	1
6	SC-22766	Screw, M5 x 0.8 x 10mm Pan	3
7	WS-22301	Washer, M5 Split Lock, S/S 18-8	3
8	TM-34311	Terminal, Fuse Holder, 8mm	3
9	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
10	FU-33452	Fuse, Neozed, 6.3 Amp	2
11	FU-34771	Fuse Holder, 2 Bank	1
12	FU-35680	Fuse, 6.25 Amp	1
13	TM-3785	Partition	3
14	TM-33675	Jumper Strip	3
15	TM-34305	Terminal, Screwless End	4

Item	Part	Description	Qty.
16	TM-3779	Terminal Block	6
17	TM-3932	Terminal, Ground	1
18	CN-3731	Contactor, 50 Amp	1
19	TM-34306	Terminal, Ground, 6mm, Spring	1
20	TM-34309	Terminal, End Section, Spring	3
21	TM-34308	Terminal, 6mm, Blue, Spring	3
22	TM-34307	Terminal, 6mm, Orange, Spring	3
23	RL-34634	Universal Mounting Socket	1
24	RL-33483	Relay, 240V LY1F	1
25	TM-34315	Terminal, End Plate	1
26	BU-3006	Bushing, 1/2" Hole	1
27	BU-3378	Bushing, 1-1/8" Snap	1
28*	5013818	Elec Chassis Rail, Spot Assembly	1
29*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
30*	TM-34310	Jumper Bar	1

*NOT SHOWN

ELECTRICAL ASSEMBLY - SIMPLE CONTROL - 380-415V 3PH
(5014569 shown)



Item	Part	Description	Qty.
1	TM-34305	Terminal, Screwless End	4
2	CU-29666	Capacitor, 16uF	1
3	WS-22299	Washer, Split Lock	2
4	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
5	BA-34508	Board, Power Supply, 40 Watt, 12V.DC	1
6	WS-22301	Washer, M5 Split Lock, S/S 18-8	3
7	SC-22766	Screw, M5 x 0.8 x 10mm Pan	3
8	FI-33989	Filter, *CT, WW Units, RC-Module	3
9	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
10	TM-34311	Terminal, Fuse Holder, 8mm	4
11	FU-33452	Fuse, Neozed, 6.3 Amp	4
12	FU-33445	Fuse, DO2 Neozed Screw CAP	3
13	FU-33444	Fuse, DO2 Neozed Base Snap-On	3
14	TM-33479	Terminals	2
15	TM-33675	Jumper Strip	4
16	TM-3779	Terminal Block	8
17	TM-3785	Partition	4
18	TM-3932	Terminal, Ground	1

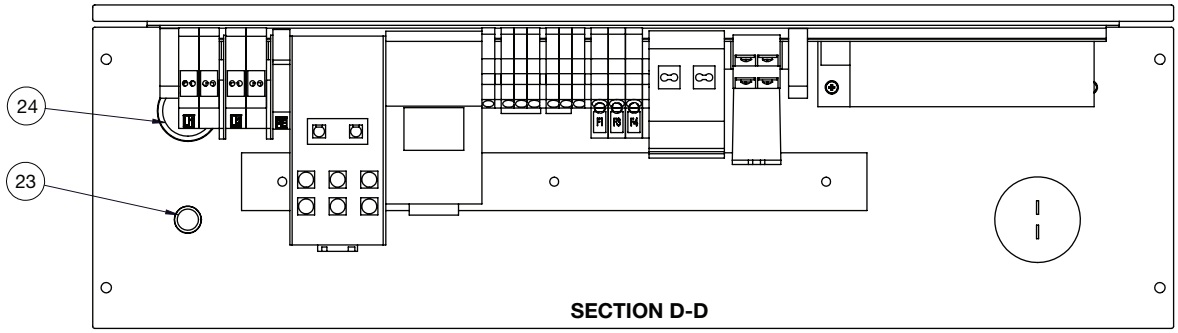
Item	Part	Description	Qty.
19	CN-3731	Contactor, 50 Amp	2
20	FI-33990	Filter, EMI	2
21	RL-34634	Universal Mounting Socket	1
22	RL-33483	Relay, 240V LY1F	1
23	TM-34309	Terminal, End Section, Spring	3
24	TM-34307	Terminal, 6mm, Orange, Spring	3
25	TM-34308	Terminal,6mm, Blue, Spring	3
26	TM-34306	Terminal, Ground, 6mm, Spring	1
27	TM-34315	Terminal, End Plate	1
28	BU-3006	1/2" Hole Bushing	1
29	BU-3378	Bushing, 1-1/8" Snap	1
30	1009584	Din Rail 11-1/2"	1
31*	5013818	Elec Chassis Rail, Spot Assembly	1
32*	FU-33447	Fuse, DO2 Neozed Gauge Ring 20A	3
33*	FU-33450	Fuse, DO2 Neozed 20A, Blue	2
34*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
35*	TM-34310	Jumper Bar	1

*NOT SHOWN

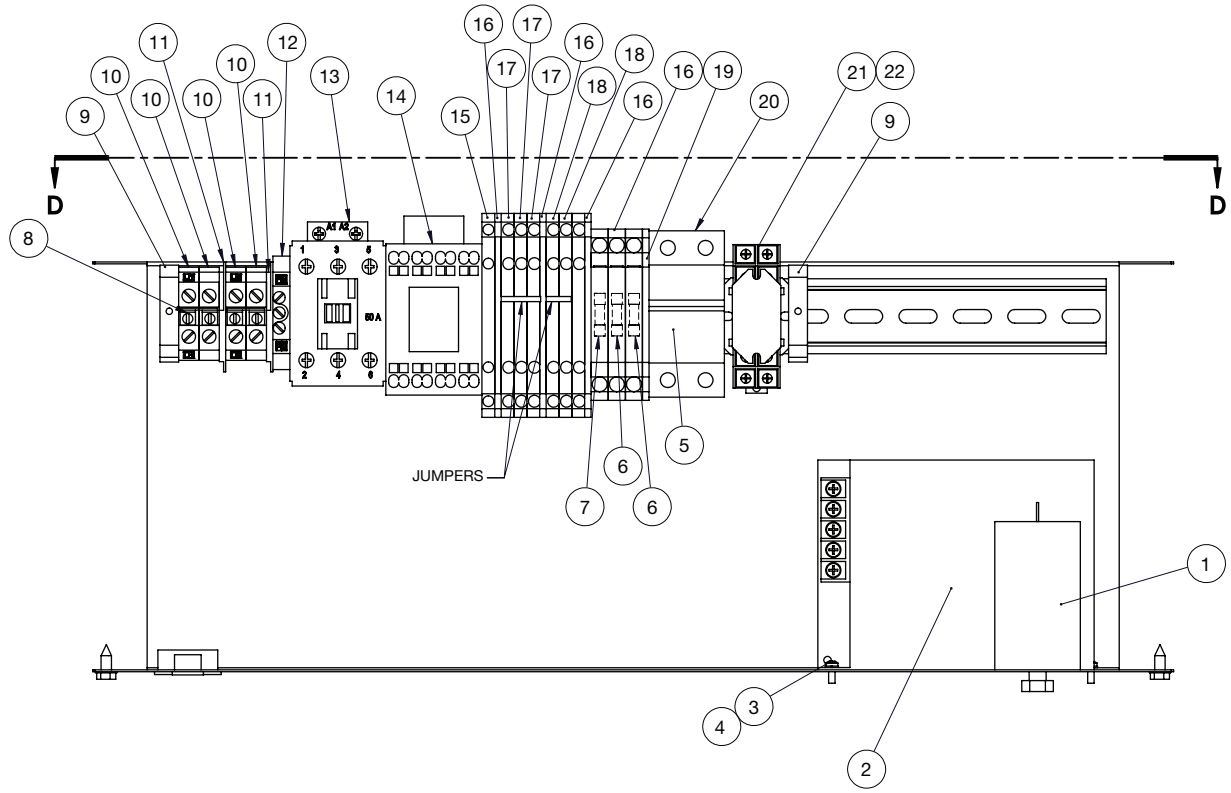
PARTS INFORMATION

ELECTRICAL ASSEMBLY - EXPRESS TOUCH - 208V 1PH & 240V 1PH

(5014731 shown)



SECTION D-D

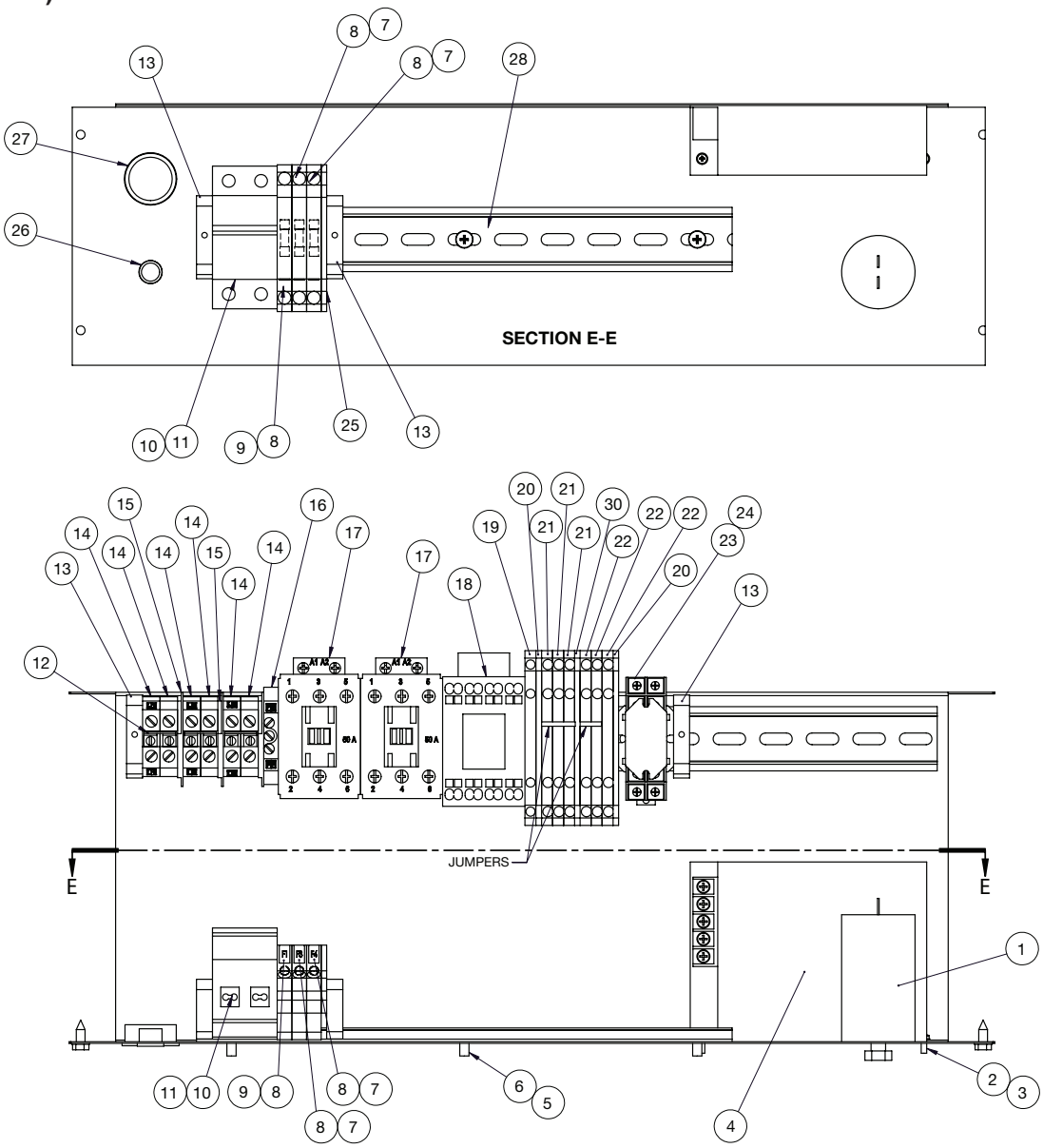


Item	Part	Description	Qty.
1	CU-29666	Capacitor, 16uF	1
2	BA-34508	Board, Power Supply, 40 Watt, 12V.DC	1
3	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
4	WS-22299	Washer, Split Lock	2
5	FU-35680	Fuse, 6.25 Amp	1
6	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
7	FU-33452	Fuse, Neozed, 6.3 Amp	2
8	TM-33675	Jumper Strip	2
9	TM-34305	Terminal, Screwless End	2
10	TM-3779	Terminal Block	4
11	TM-3785	Partition	2
12	TM-3932	Terminal, Ground	1
13	CN-3731	Contactor, 50 Amp	1
14	CN-34304	Contactor, 240V, 25 Amp	1

Item	Part	Description	Qty.
15	TM-34306	Terminal, Ground, 6mm, Spring	1
16	TM-34309	Terminal, End Section, Spring	3
17	TM-34308	Terminal,6mm, Blue, Spring	3
108	TM-34307	Terminal, 6mm, Orange, Spring	3
19	TM-34315	Terminal, End Plate	1
20	FU-34771	Fuse Holder, 2 Bank	1
21	RL-34634	Universal Mounting Socket	1
22	RL-33483	Relay, 240V LY1F	1
23	BU-3006	Bushing, 1/2" Hole	1
24	BU-3378	Bushing, 1-1/8" Snap	1
25*	5013818	Elec Chassis Rail, Spot Assembly	1
26*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
27*	TM-34310	Jumper Bar	1
28*	TM-34311	Terminal, Fuse Holder, 8mm	3

*NOT SHOWN

ELECTRICAL ASSEMBLY - EXPRESS TOUCH - 208-240V 3PH
(5014732 shown)



Item	Part	Description	Qty.
1	CU-29666	Capacitor, 16uF	1
2	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
3	WS-22299	Washer, Split Lock	2
4	BA-34508	Board, Power Supply, 40 Watt, 12V.DC	1
5	WS-22301	Washer, M5 Split Lock, S/S 18-8	3
6	SC-22766	Screw, M5 x 0.8 x 10mm Pan	3
7	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
8	TM-34311	Terminal, Fuse Holder, 8mm	3
9	FU-33452	Fuse, Neozed, 6.3 Amp	2
10	FU-35680	Fuse, 6.25 Amp	1
11	FU-34771	Fuse Holder, 2 Bank	1
12	TM-33675	Jumper Strip	3
13	TM-34305	Terminal, Screwless End	4
14	TM-3779	Terminal Block	6
15	TM-3785	Partition	3
16	TM-3932	Terminal, Ground	1

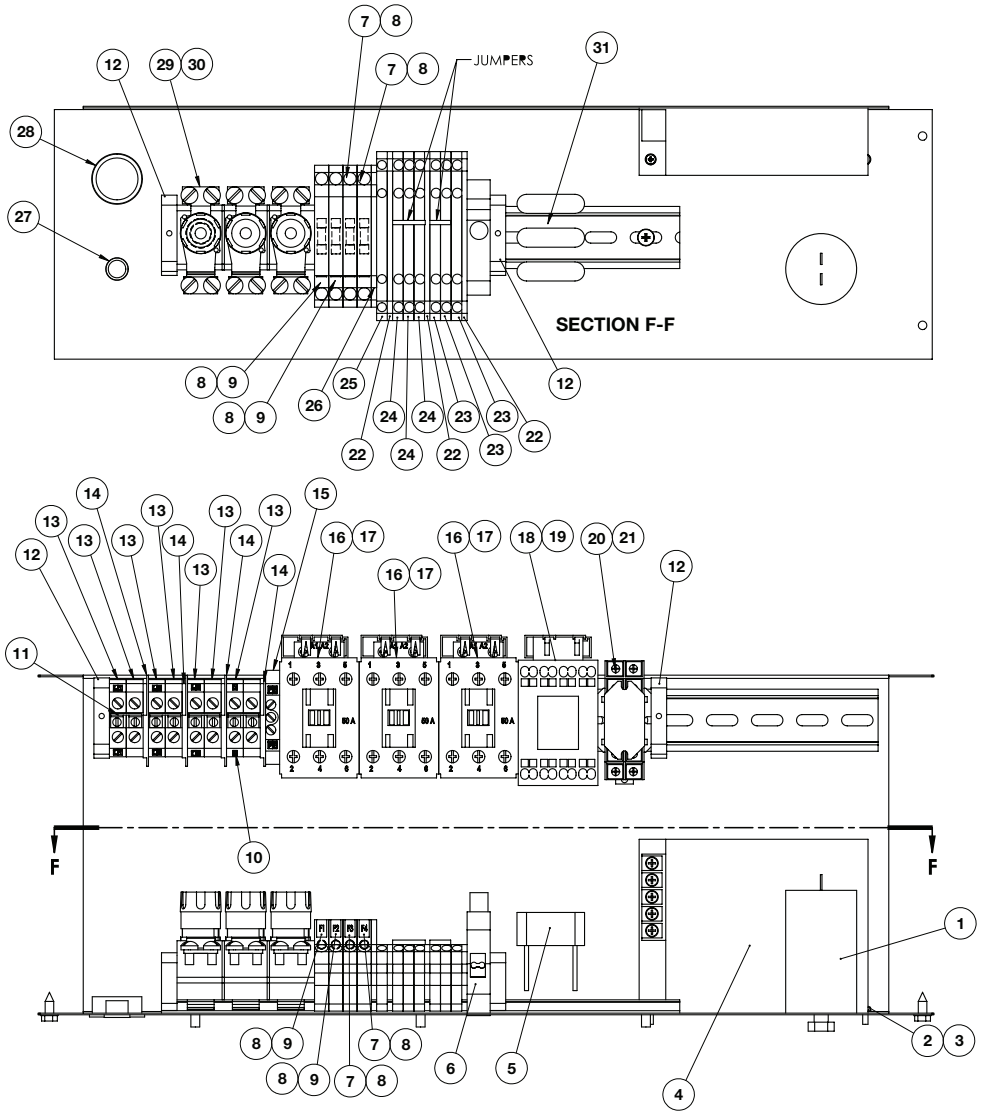
Item	Part	Description	Qty.
17	CN-3731	Contactor, 50 Amp	2
18	CN-34304	Contactor, 240V, 25 Amp	1
19	TM-34306	Terminal, Ground, 6mm, Spring	1
20	TM-34309	Terminal, End Section, Spring	3
21	TM-34308	Terminal, 6mm, Blue, Spring	3
22	TM-34307	Terminal, 6mm, Orange, Spring	3
23	RL-34634	Universal Mounting Socket	1
24	RL-33483	Relay, 240V LY1F	1
25	TM-34315	Terminal, End Plate	1
26	BU-3006	Bushing, 1/2" Hole	1
27	BU-3378	Bushing , 1-1/8" Snap	1
28	1009584	Din Rail 11-1/2"	1
29*	5013818	Elec Chassis Rail, Spot Assembly	1
30*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
31*	TM-34310	Jumper Bar	1

*NOT SHOWN

PARTS INFORMATION

ELECTRICAL ASSEMBLY - EXPRESS TOUCH - 380-415V 3PH

(5014733 shown)

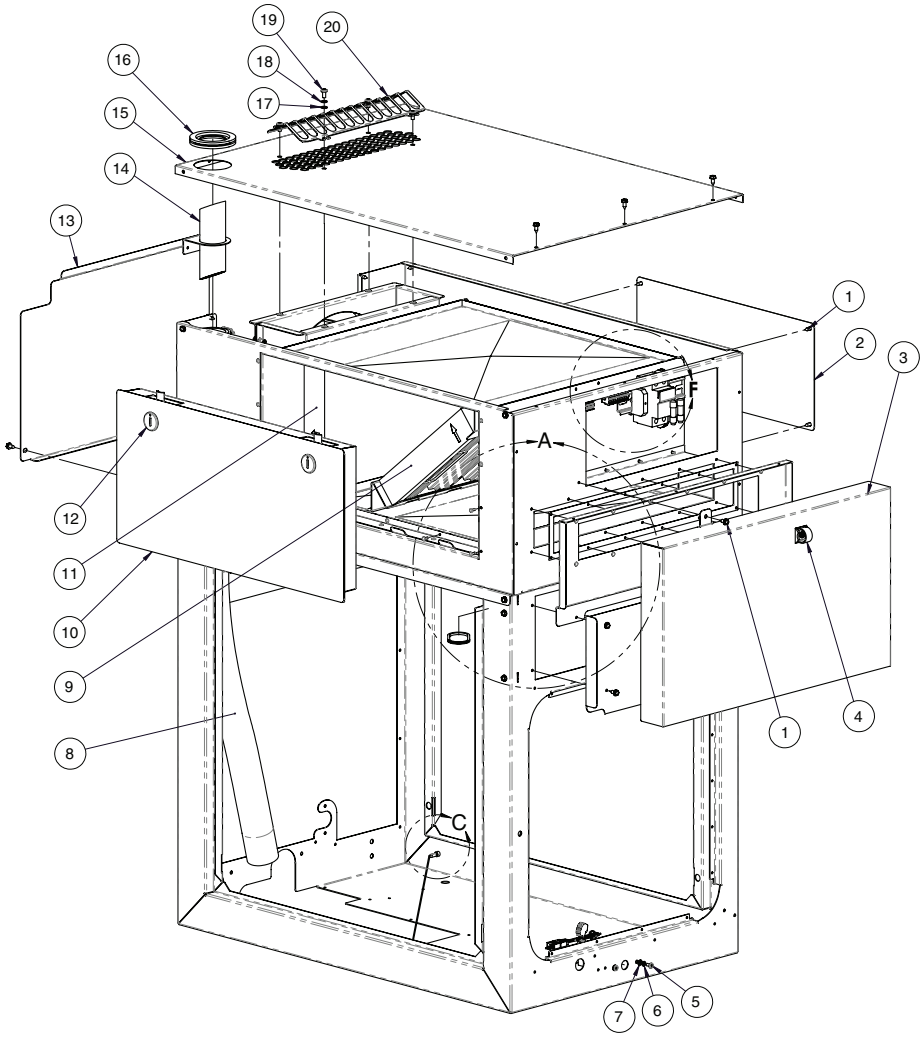


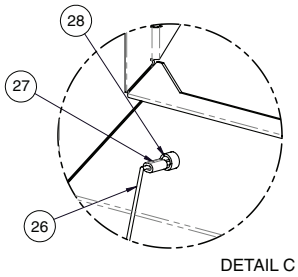
Item	Part	Description	Qty.
1	CU-29666	Capacitor, 16uF	1
2	SC-22268	Screw, M3 x 0.5 x 8mm Pan	2
3	WS-22299	Washer, Split Lock	2
4	BA-34508	Board, Power Supply, 40 Watt, 12V.DC 1	1
5	FI-33989	Filter, *CT, WW Units, RC-Module	3
6	FU-33451	Fuse Terminal, 6.3 Amp	1
7	FU-33184	Fuse, 5 x 20mm, Slow Blo, 2 Amp, 250V	4
8	TM-34311	Terminal, Fuse Holder, 8mm	4
9	FU-33452	Fuse, Neozed, 6.3 Amp	4
10	TM-33479	Terminal	2
11	TM-33675	Jumper Strip	4
12	TM-34305	Terminal, Screwless End	4
13	TM-3779	Terminal Block	8
14	TM-3785	Partition	4
15	TM-3932	Terminal, Ground	1
16	CN-3731	Contactor, 50 Amp	3
17	FI-33990	Filter, EMI	3
18	CN-34304	Contactor, 240V, 25 Amp	1
19	FI-34492	Filter for Spring Clamp	1

Item	Part	Description	Qty.
20	RL-34634	Universal Mounting Socket	1
21	RL-33483	Relay, 240V LY1F	1
22	TM-34309	Terminal, End Section, Spring	3
23	TM-34307	Terminal, 6mm, Orange, Spring	3
24	TM-34308	Terminal,6mm, Blue, Spring	3
25	TM-34306	Terminal, Ground, 6mm, Spring	1
26	TM-34315	Terminal, End Plate	1
27	BU-3006	1/2 Hole Bushing	1
28	BU-3378	1 1/8" Snap Bushing	1
29	FU-33444	Fuse, DO2 Neozed Base Snap-On	3
30	FU-33445	Fuse, DO2 Neozed Screw CAP	3
31	1009584	Din Rail 11-1/2"	1
32*	5013818	Spot Assembly, Elec Chassis Rail	1
33*	FU-33447	Fuse, DO2 Neozed Gauge Ring 20A	3
34*	FU-33450	Fuse, DO2 Neozed 20A, Blue	2
35*	SC-22766	Screw, M5 x 0.8 x 10mm Pan	3
36*	SC-29871	Screw, #8 x 1/2" Hex Flg	4
37*	TM-34310	Jumper Bar	1
38*	WS-22301	Washer, M5 Split Lock, S/S 18-8	3

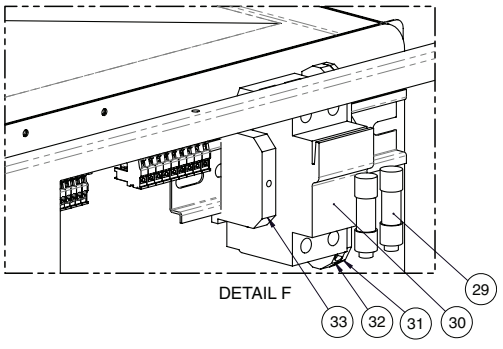
*NOT SHOWN

VENTLESS HOOD ASSEMBLY - FRONT AND SIDE VIEW

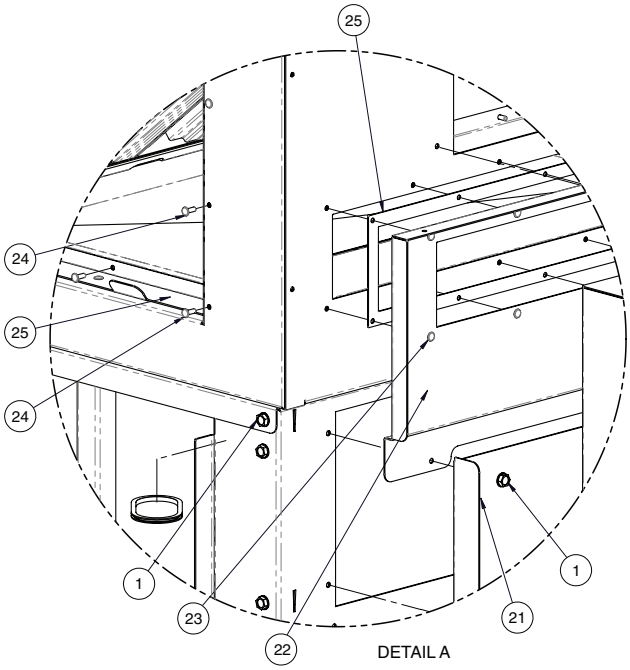




DETAIL C



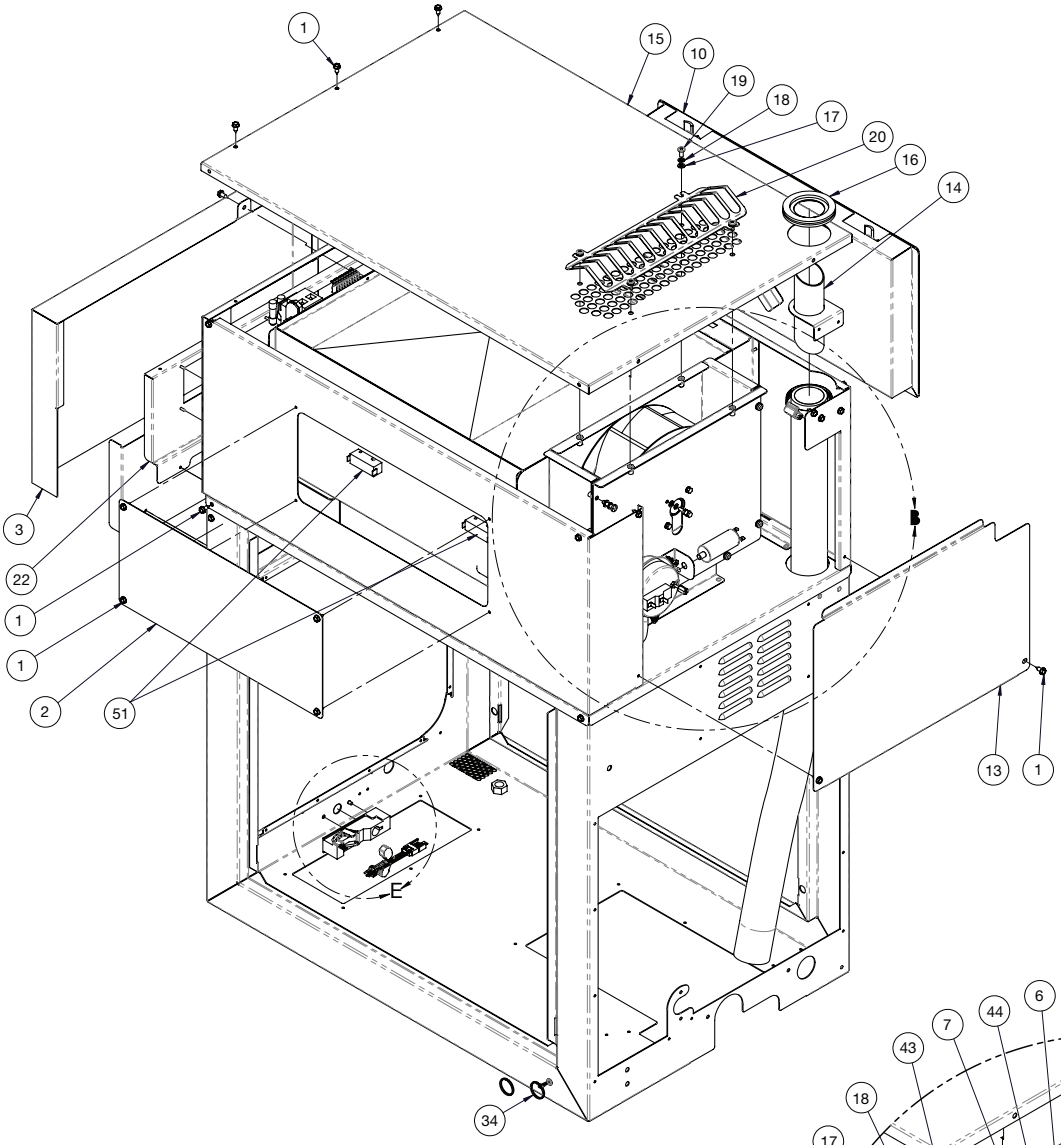
DETAIL F

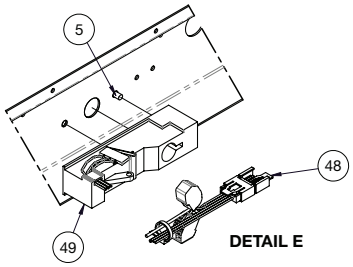


DETAIL A

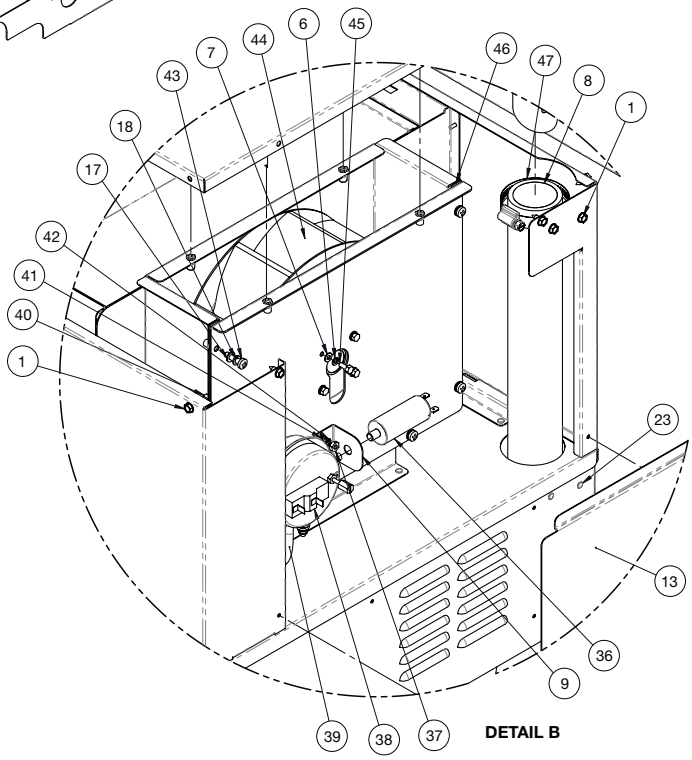
PARTS INFORMATION

VENTLESS HOOD ASSEMBLY - SIDE AND REAR VIEW





DETAIL E



DETAIL B

VENTLESS HOOD ASSEMBLY - 67751

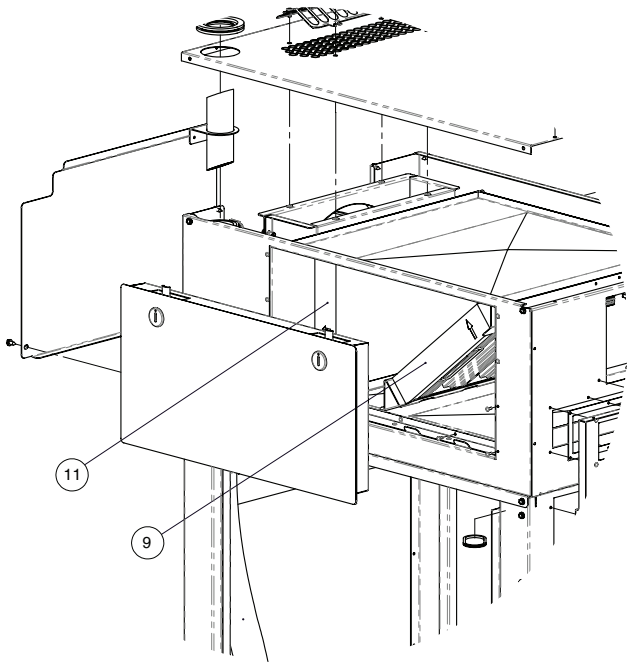
Item	Part	Description	Qty.
1	SC-29871	Screw, #8 x 1/2" Hex Flg	36
2	1013196	Cover, Sensor	1
3	1013224	Snorkel, Front	1
4	CM-3585	Clamp, Self-Adhesive	1
5	SC-35729	Screw, M4 x 0.7 x 8mm Pan	2
6	WS-22300	Washer, Split Lock	6
7	WS-22294	Washer, Flat M4 18-8 S/S	6
8	HO-29435	Hose, 1 5/8" ID, 36"LG	1
9	FI-24113	Filter, Grease, VHML-10	1
10	5014975	Cover, Access, Spot	1
11	FI-24114	Filter, Odor Guard III	1
12	LT-25513	Latch, Action	2
13	1013195	Cover, Back	1
14	5014726	Vent Tube Weld Assembly	1
15	1013194	Top	1
16	BU-28391	Bushing, Socket, Membrane	1
17	WS-22295	Washer, Flat S/S	10
18	WS-22301	Washer, M5 Split Lock, S/S 18-8	10
19	SC-22766	Screw, M5 x 0.8 x 10mm Pan	5
20	1013243	Guard, Exhaust	1
21	1013511	Snorkel, Back, Lower	1
22	1013223	Snorkel, Back	1
23	RI-27108	Rivet, Sealed	51
24	1013412	Tabs, Closure	1
25	1013225	Spacer, Tunnel	1

Item	Part	Description	Qty.
26	1011021	Cable, VHES	1
27	CL-28849	Clip, Crimp for 1/16" Wire Cable	2
28	BU-3009	Bushing, Snap, 5/16"	1
29	FU-34784	Fuse, 5 Amp	2
30	FU-34771	Fuse Holder, 2 Bank	1
31	TM-34309	Terminal, End Section, Spring	1
32	TM-34308	Terminal, 6mm, Blue, Spring	1
33	TM-34305	Terminal, Screwless End	2
34	PL-28413	Pull, Key Ring, 3/4" Manual	2
35	SW-35056	Switch, 5A 125-250VAC, 1/10HP	2
36	FA-34860	Capacitor, Fan, 5UF 275V 10000	1
37	NU-2296	Nut, Hex #8-32	3
38	5014331	Switch, Calibrated Pressure	1
39	TU-24183	Tubings,*CT, Norprene, 3/16 I.D., 14" Lg	1
40	FT-24182	Fitting with Hose Barb Panel	1
41	WS-23424	Washer, #8, Flat	3
42	WS-27045	Washer, #8, Lock Washer	3
43	SC-22779	Screw, M5-0.8 x 20 mm, PH Pan Hd, M/S	6
44	FA-34497	Fan, 230V, 225mm Dia. 756CFM	1
45	SC-23664	Screw, M4 x 10mm, Hex Head Trim	4
46	GS-2019	Gasket, 1/2", Panel, Self-Adhesive, 2.75' Lg	1
47	CL-22234	Clamp, Worm Gear, 40-60, Hose	1
48	5015598	Lock, Soldered	1
49	LK-34292	Lock, Rahrbach GMBH	1
50*	1013372	Bracket, Capacitor	1

*NOT SHOWN

Filters

Item	Part	Description	Qty.
9	FI-24113	Filter, Grease, VHML-10	1
11	FI-24114	Filter, Odor Guard III	1



WIRING DIAGRAMS

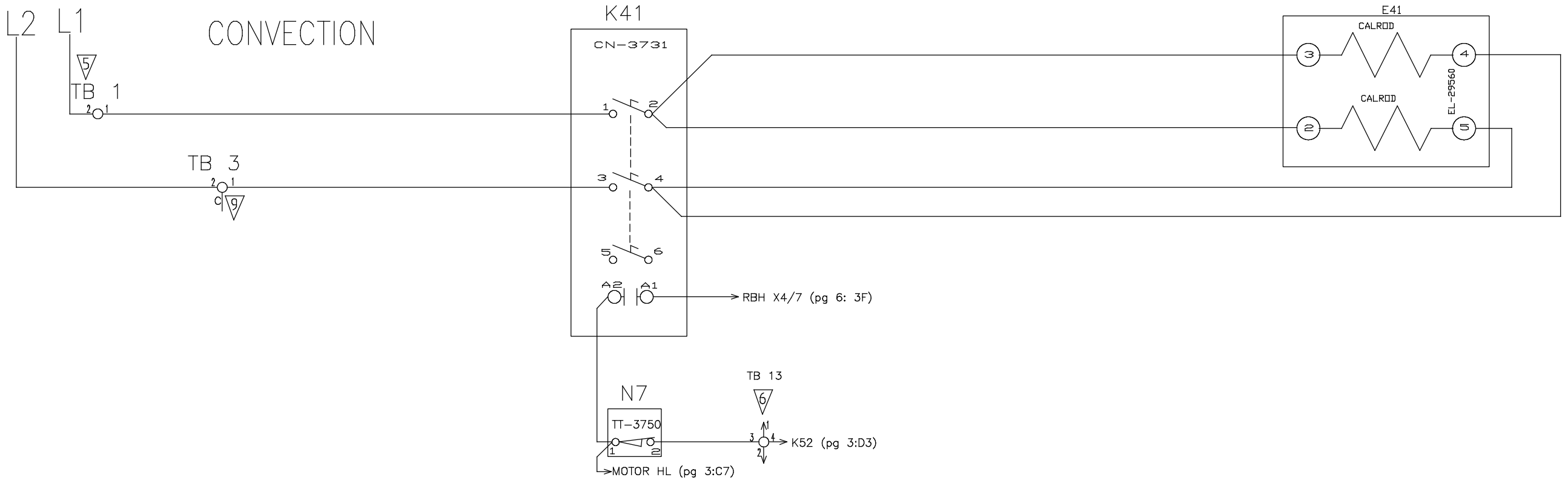
Always refer to the wire diagram(s) included with the unit for most current version.

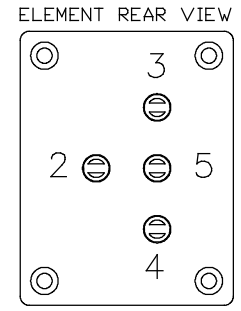
208-240V, 60Hz, 1Ph
77391 . . . . . F-2

208-240V, 60Hz, 3Ph
77421 . . . . . F-12

380-415V, 50Hz, 3Ph
77420 . . . . . F-24

Return to Main Table of Contents ii





NOTE:

1. F1 IS COMPRISED OF (TM-34311), (FU-33184)
2. F2 IS COMPRISED OF (TM-34771), (FU-35680)
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12. FUSE SK IS COMPRISED OF (TM-34771), (FU-34784)
13. FUSE CC IS COMPRISED OF (TM-34771), (FU-34938)

REFERENCE CUT SHEET 5014739
REFERENCE CUT SHEET 5015610 EXPRESS
REFERENCE CUT SHEET 5015611 SIMPLE

REV	ECO	DESCRIPTION	DATE	APP
9	6721	Replace BA-34508 with BA-36144	10/31/2013	MVQ
8	6725	Replace SMK fuse "3A" with "5A"	05/17/2013	MVQ
7	6551	Remove MPS	12/27/2012	AFT

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 208V-240V 1PH

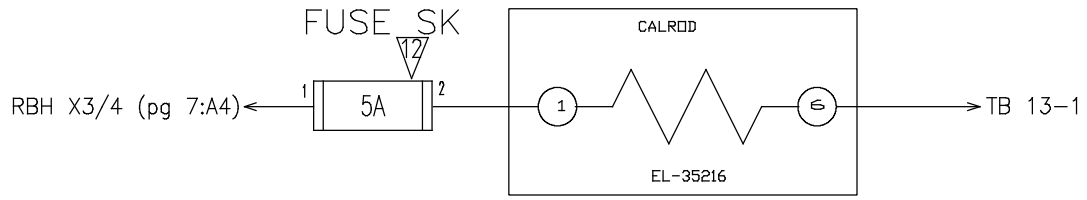
BY: MVQ

DATE: 11/14/11

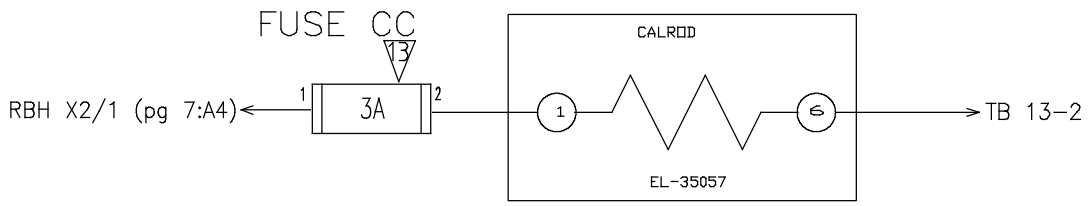
DWG: 77391

SHEET 1_OF_10

SMOKER



CATALYTIC CONVERTER



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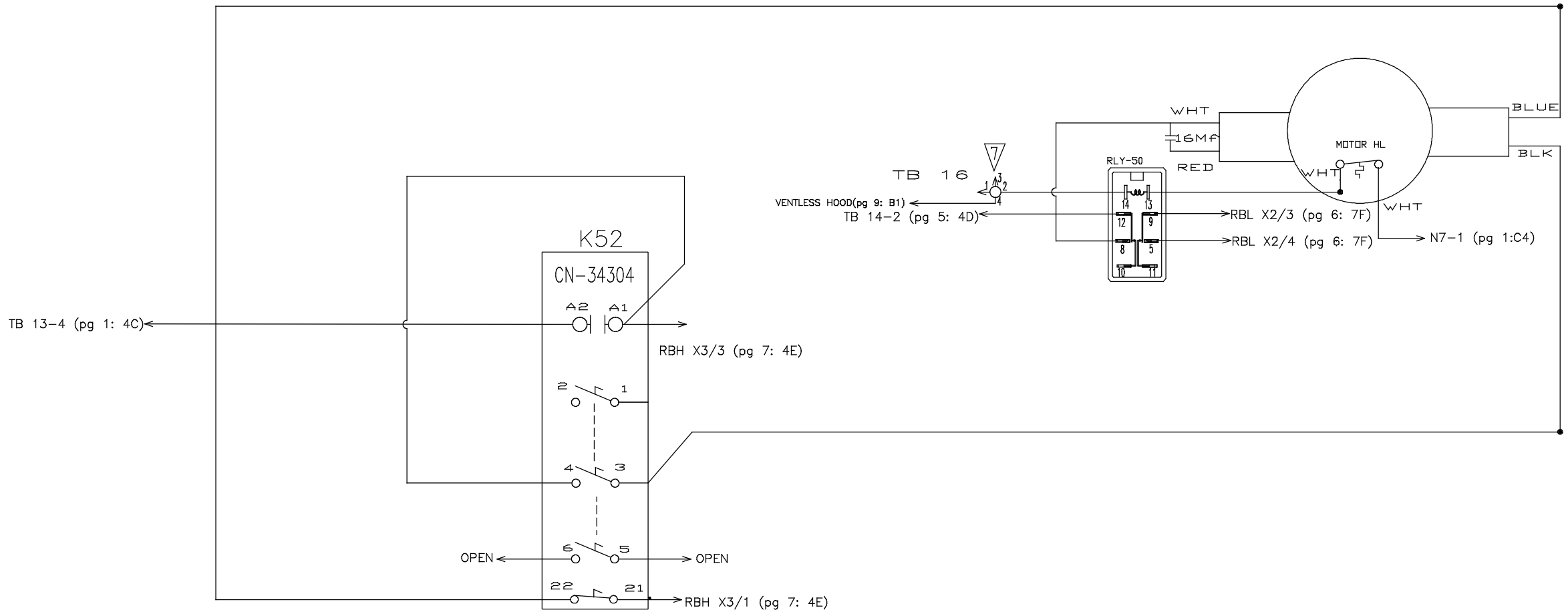
REV	ECO	DESCRIPTION	DATE	A

ALTO-SHAAM — **WIRING DIAGRAM**

CTX4-10E 208-240V 1PH

BY: MVQ — DWG: — SHEET

TWO SPEED OPTION



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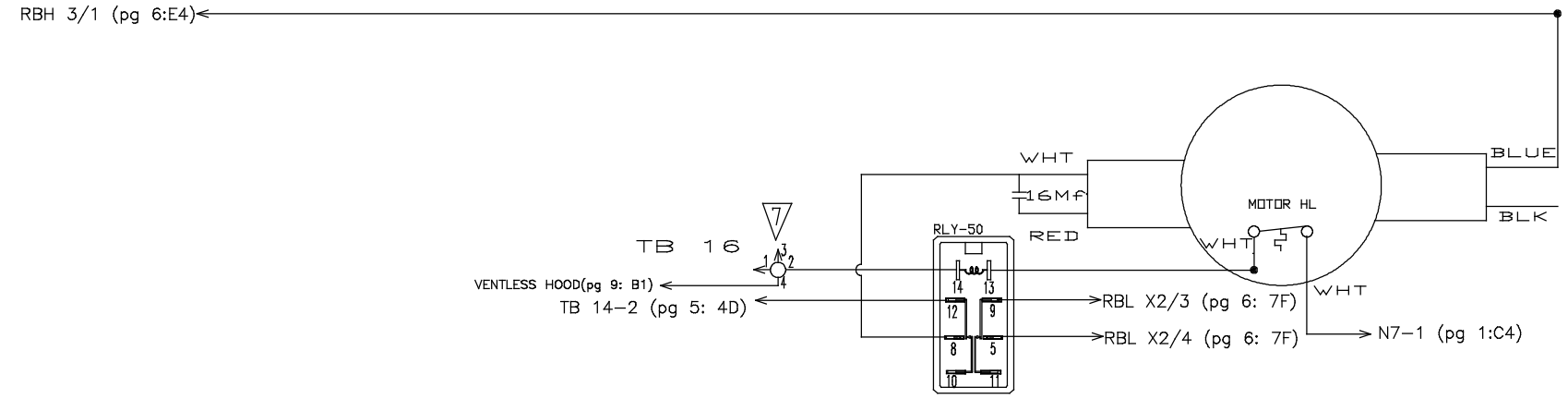
REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 1PH	
BY: MVQ	DWG: 77391	SHEET 3_OF_10
DATE: 11/14/11		

ONE SPEED OPTION



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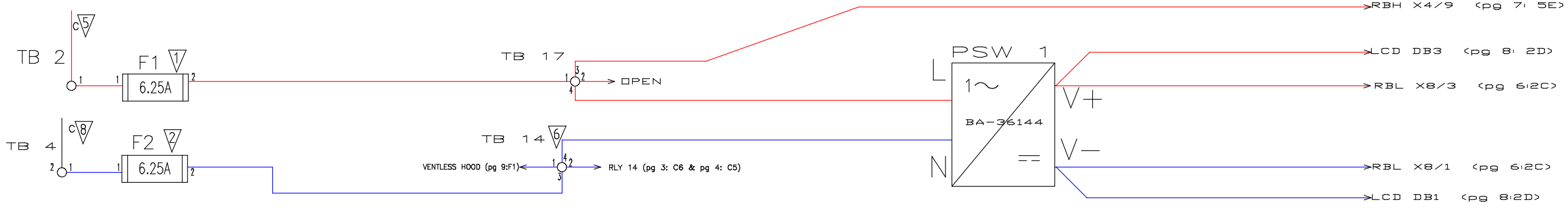
REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PG 1		

ALTO-SHAAM	WIRING DIAGRAM
	CTX4-10E 208-240V 1PH
BY: MVQ	DWG: 77391
DATE: 11/14/11	SHEET 4_OF_10



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REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 1PH	
BY: MVQ	DWG: 77391	SHEET 5_OF_10
DATE: 11/14/11		

INPUT SIGNAL CONTROL

VENT SWITCH

VENT MOTOR
VA-26838

M
12Vdc

BLU

RED

RBH & RBL BA-34670

S01

ON
OFF
1 2 3 4 5 6 7 8

X07

34 pole flat ribbon cable, connection to RBL

	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	ELECTRIC	GAS
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

PSW1 V- pg 5: 8D

PSW1 V+ pg 5: 8C

X08 (TM-34881)

(TM-34881)

X06 (TM-34931)

X05 (TM-34931)

(TM-34931)

5015598
VENTLESS HOOD (pg 9:G6)
VENTLESS HOOD (pg 9:G4)

B10

PRODUCT PROBE
PR-33746

902 WHITE
904 GREEN
906 GRN/YEL
908 GRN/WHT
910 GRN/RED

Multi-Point Probe Optional

X09 (TM-34884)

(TM-34884)

Multi-Point Probe Optional

X10 (TM-34884)

OVEN TEMP. PROBE
(PR-33724)

YELLOW
RED
YELLOW

B6

X11 (TM-34889)

(TM-34889)

STEAM BYPASS PROBE
(PR-33751)

RED
RED
YELLOW

B5

COOLING WATER PROBE
(PR-33751)

BLUE
RED
YELLOW

B3

PR-29650
PRODUCT PROBE

B11

BLACK
WHITE

X12 (TM-34881)

(TM-34881)

X13 (TM-34884)

TB 11-4 (pg 6:G3)

(TM-34884)

RBL
BA-34876

X13

X09 Ribbon Cable DB

X04 (TM-34889)

X03 (TM-34889)

X02 (TM-34934)

(TM-34934)

DOOR SW
LT-3738

TWO SPEED

SINGLE SPEED

RLY 9 (pg 3:7F) OR MOTOR HL (pg 4:C8)

RLY 5 (pg 3:7F) OR MOTOR HL (pg 4:C8)

X01 (TM-34884)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 208-240V 1PH

BY: MVQ

DATE: 11/14/11

DWG: 77391

SHEET 6_OF_10

AC CONTROL

RBH BA-34875

FUSE 13 (pg 2:D3)

VENTLESS HOOD (pg 9:B8)

VENTLESS HOOD (pg 9:F8)

X02 (TM-34801) 216 214 212 210 208 206 204 202 200

X01 (TM-34801) 116 114 112 110 108 106 104 102 100

Y3 VALVE D22
Y1 BOILER FILL D23
BOILER DRAINING PUMP D24
Y2 COOLING VALVE D25
CLEANING PUMP D26
D27
CATTALYTIC CONVERTER D10
GAS ALARM 1 D28
GAS ALARM 2 D29

POWER RWABLE D01
K41 D21
K42 D20
K1 BOILER Y1 BOILER LESS D19
K2 D18
GREASE PUMP D17
CLEAN FLUID PUMP D16
BROILER D15
SMOKER D14
LOW SPEED D13
CCW REAR VIEW D12
CW REAR VIEW D11

X11

X07 Ribbon Cable RBL

Y4 A1 A2

CLEANING PUMP MD-34636

Y5 VA-33723 COLD VALVE A1 A2

Y3 VA-33723 CLEANING VALVE A1 A2

LS1
TT-35648
THERMAL SWITCH

(TM-34801) 416 414 412 410 408 406 404 402 400 X04

(TM-34796) 306 304 302 300 X03

TB 15

TB 17-3 <pg 5:C8>

Y1 VA-33723 STEAM VALVE A1 A2

FUSE 12 (PG 2:B3)

K52/A1 <pg 3:D6>

K52/21 <pg 3:E6>

DR MOTOR BLUE <pg 4:B4>

K41/A1 <pg 1:C5>

TB 12

K61/A1 <pg 2:C5>

COOLING FAN FRONT
FA-3568
A2 M A1

COOLING FAN REAR
FA-3568
A2 M A1

F3 2.0A TM-34311

F4 2.0A TM-34311

LP-34206

OPEN
TB 11
RBL X14-3 (pg 6:G4)
OPEN

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 1PH	
BY: MVQ	DWG: 77391	SHEET 7_OF_10
DATE: 11/14/11		

DISPLAY CONTROL

BA-29719

Simple Plus Display Control

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

PS V- <pg 5:8D>

PS V+ <pg 5:8C>

BA-34778

DB:1
DB:2
DB:3
DB:4

USB Connection

USB CABLE

BA-34778

Simple Basic

K1 K7 K2 K5 K8 K3 K6 K11 K9 K4 K10

DISP1

DISP2

BUZ

BA-29718

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 1PH	
BY: MVQ	DWG: 77391	SHEET 8_OF_10
DATE: 11/14/11		

VENTLESS HOOD

FU-34784

2 1 5.0

F5

SW-33101

4 3

MAIN SW

SW-35056

COM NO

FILTER SW1

SW-35056

COM NO

FILTER SW2

SW-5014331

NO COM

PRESSURE SW

TB 16-4 (pg 3:C6)

RBH X1/7 (pg 7:A5)

FA-34860

BLK 1

2 BRWN

M

BLU

FA-34497

1

LT-33951

LT

2

TB19

419

420

410

FU-34771
5A FUSE
(FU-34784)

FUSE 5

411

421

422

TB 14-1 (pg 5:D4)

TB 19-3

TB 19-2

RBH X1/9 (pg 7:A5)

LK-34292
5015598

RBL X6/1 (pg 6:C7)

BLU

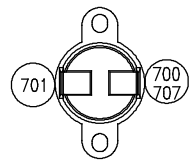
BLU

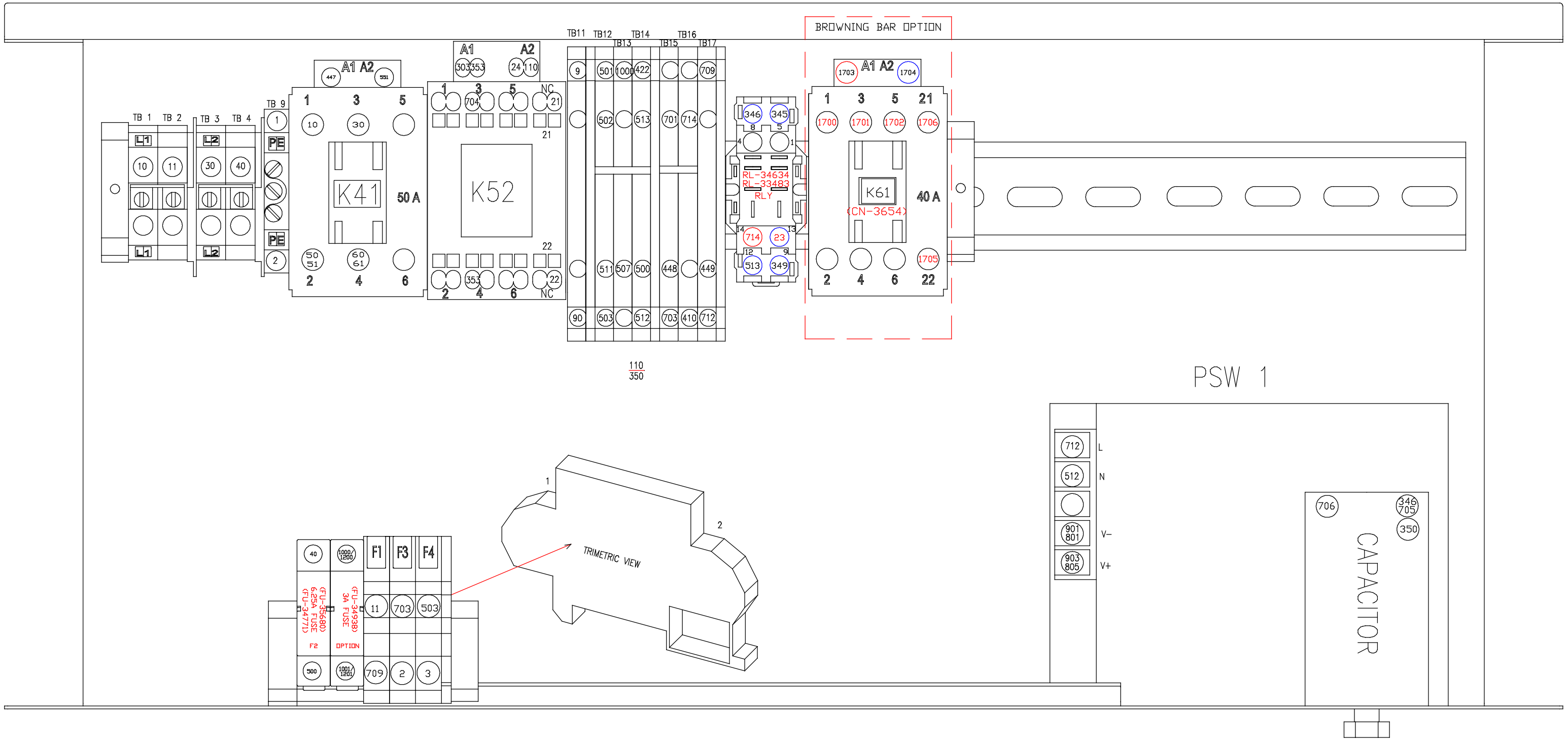
RBL X6/2 (pg 6:C7)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 1PH	
BY: MVQ	DWG: 77391	SHEET 9_OF_10
DATE: 11/14/11		

LEGEND

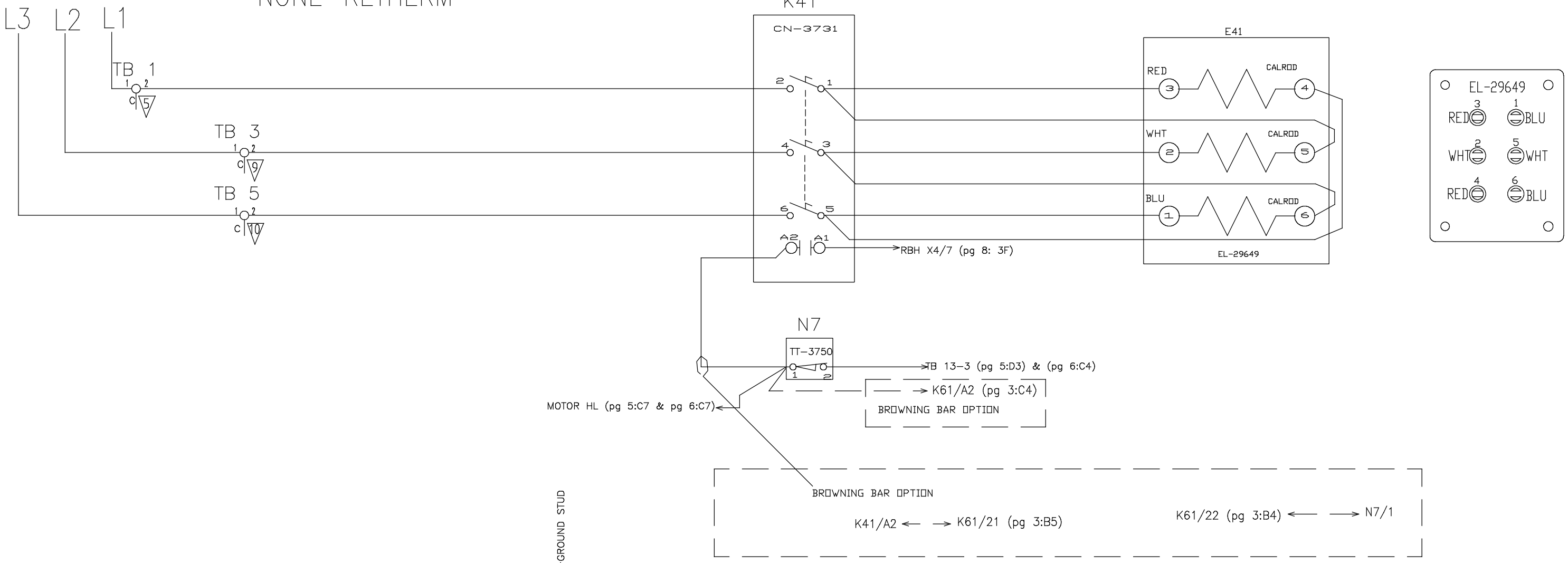




		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		CTX4-10E 208-240V 1PH	
BY:	MVQ	DWG: 77391	SHEET 10_OF_10
DATE:	11/14/11		

NONE–RETHERM



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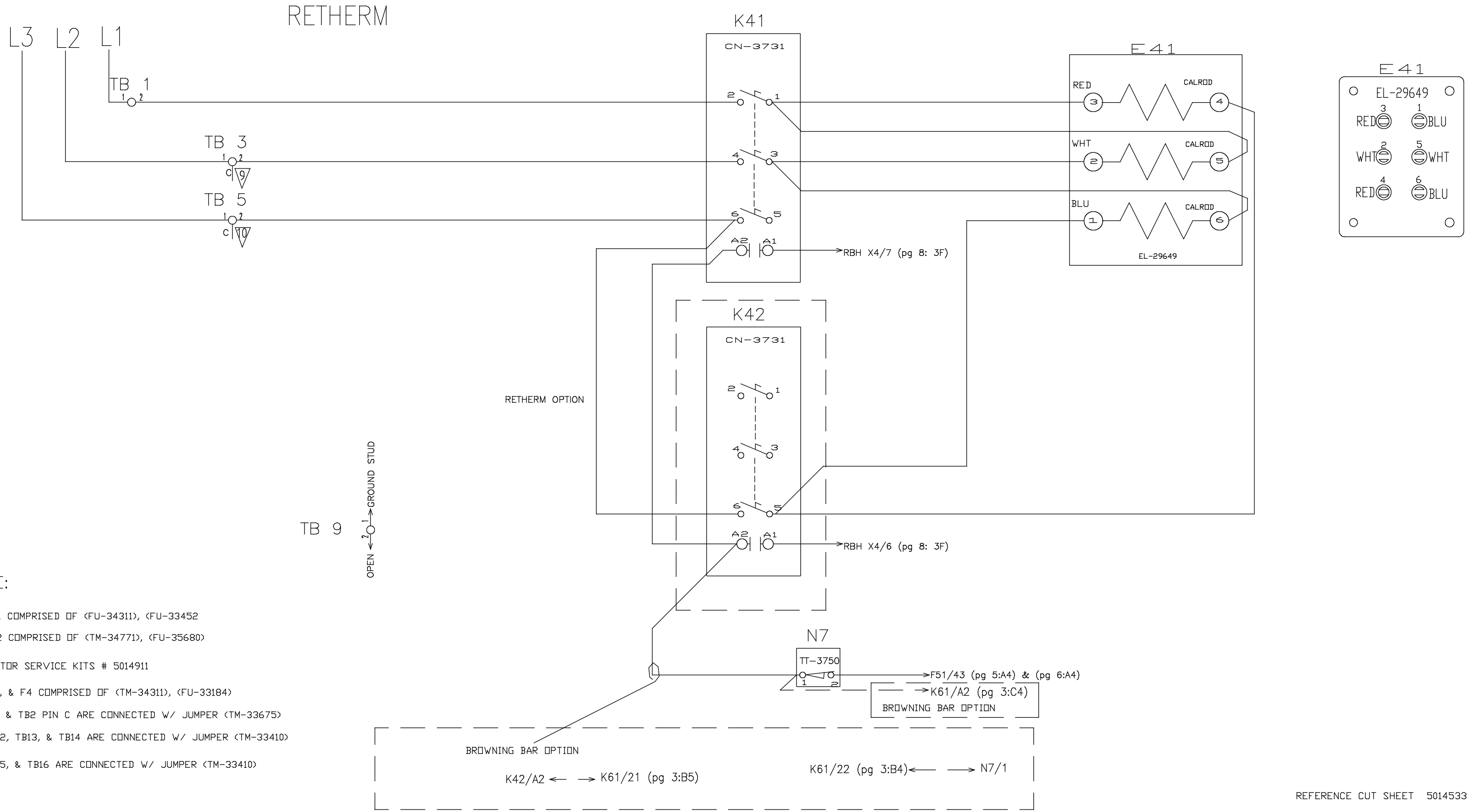
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

REFERENCE CUT SHEET 5014533
REFERENCE CUT SHEET 5015600 EXPRESS
REFERENCE CUT SHEET 5015601 SIMPLE

REFERENCE CUT SHEET OPTION SMK 5015602
REFERENCE CUT SHEET OPTION CC 5015831
REFERENCE CUT SHEET OPTION BB 5015603

REV	ECO	DESCRIPTION	DATE	APP
12	6721	Replace BA-34308 with BA-36144	10/30/2013	MVQ
11	6725	Replace SMK fuse "3A" to "5A"	05/17/2013	MVQ
10	6639	REMOVED FU-34938 ADDED FU-34784	3/4/2013	MLP

ALTO-SHAAM	WIRING DIAGRAM		
	CTX4-10E 208-240V 3PH		
BY: MVQ	DWG: 77421	SHEET	1_OF_12
DATE: 11/14/11			



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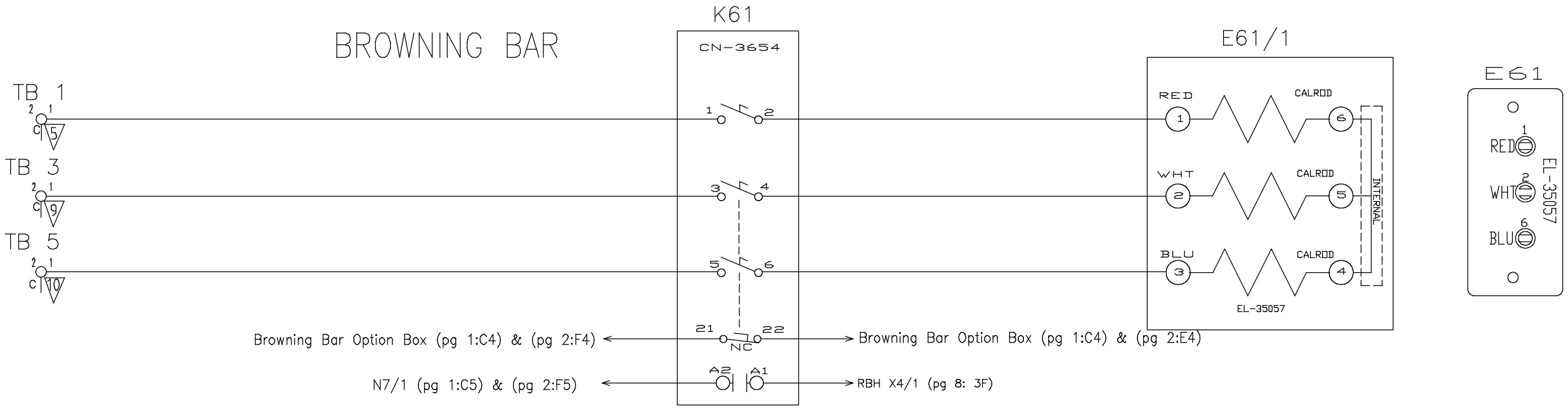
REFERENCE CUT SHEET 5014533

		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		CTX4-10E 208-240V 3PH	
BY:	MVQ	DWG: 77421	SHEET 2_OF_12
DATE:	11/14/11		

BROWNING BAR



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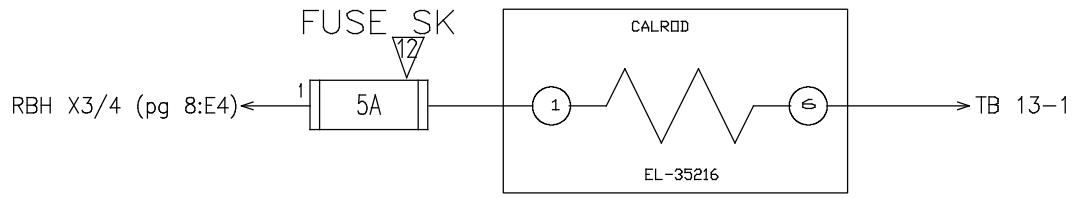
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

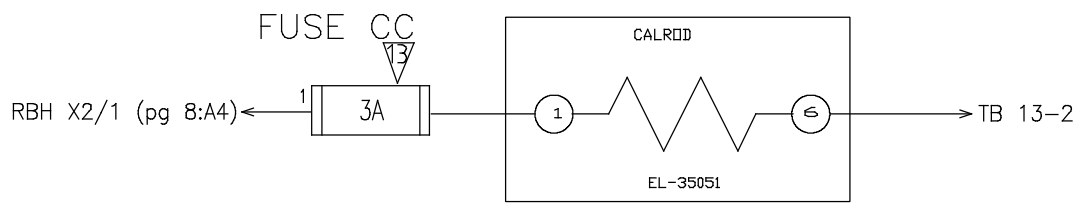
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM	**WIRING DIAGRAM**		
	CTX4-10E 208-240V 3PH		
BY: MVQ	**DWG:** 77421	**SHEET** 3_OF_12	
DATE: 11/14/11			

SMOKER OPTION



CATALYTIC CONVERTER OPTION



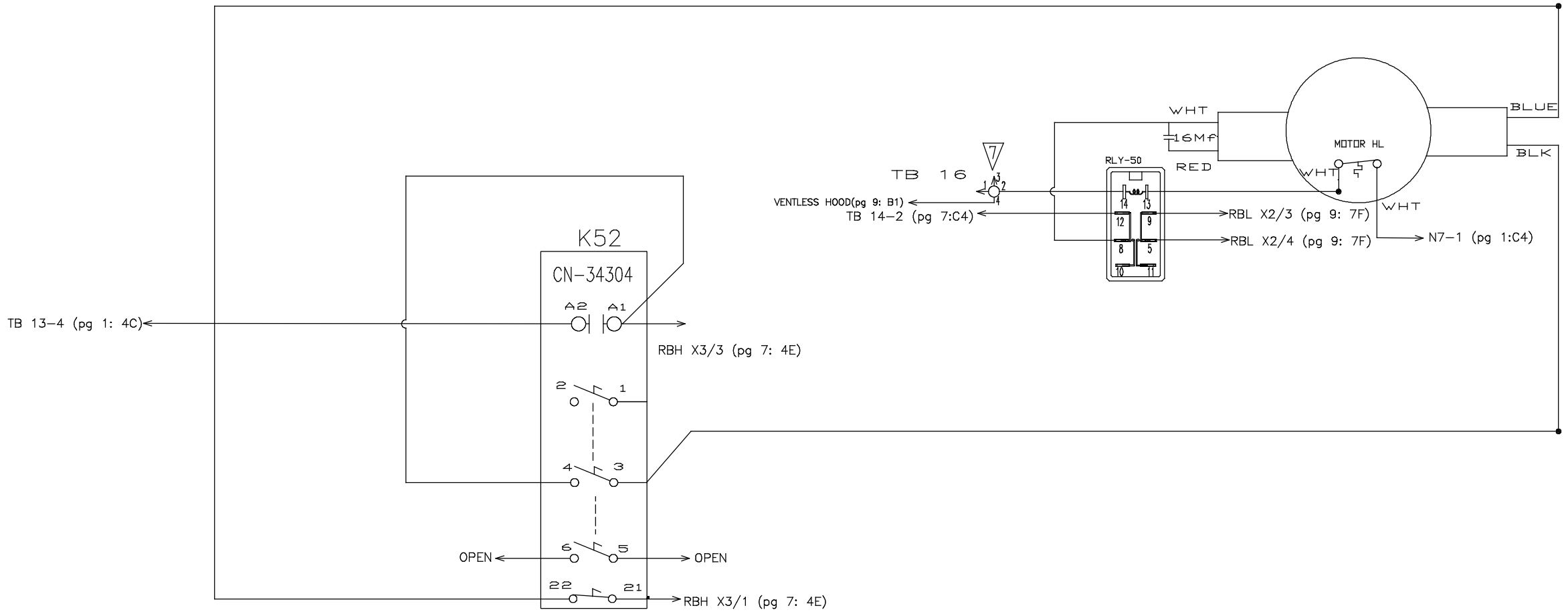
NOTE:

1. F1 COMPRISED OF (FU-34311), (FU-33452
2. F2 COMPRISED OF (TM-34771), (FU-35680)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER (TM-33410)
7. TB15, & TB16 ARE CONNECTED W/ JUMPER (TM-33410)
8.
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM	WIRING DIAGRAM		
	CTX4-10E 208-240V 3PH		
BY: MVQ	DWG: 77421	SHEET 4_OF_12	
DATE: 11/14/11			

TWO SPEED OPTION



NOTE:

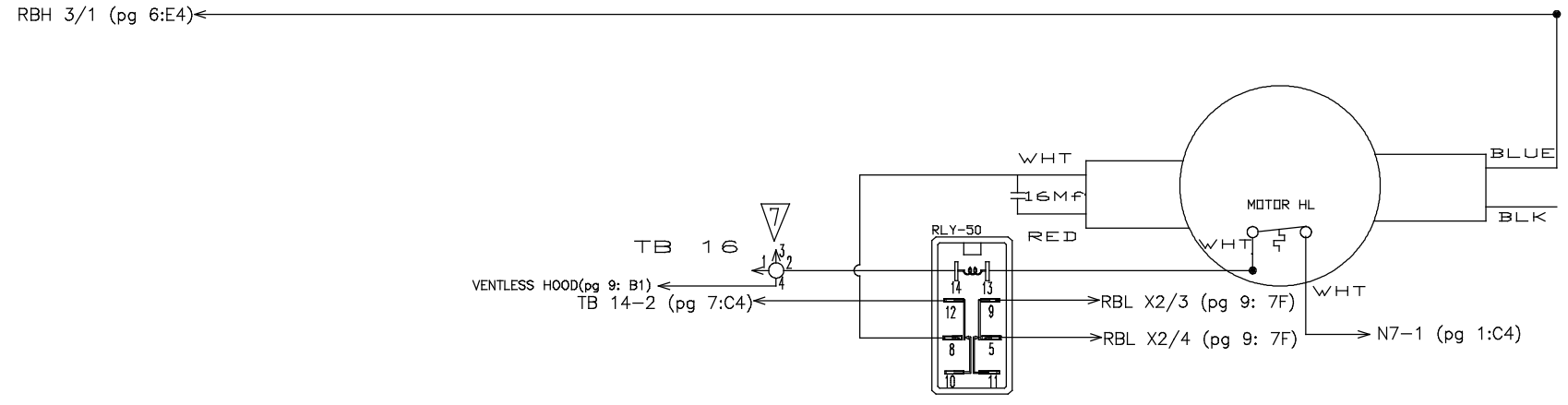
1. F1 COMPRISED OF (FU-34311), (FU-33452
2. F2 COMPRISED OF (TM-34771), (FU-35680)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER (TM-33410)
7. TB15, & TB16 ARE CONNECTED W/ JUMPER (TM-33410)
8.
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

REFERENCE CUT SHEET 5014533

		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		CTX4-10E 208-240V 3PH	
BY:	MVQ	DWG: 77421	SHEET
DATE:	11/14/11		5_OF_12

ONE SPEED OPTION



NOTE:

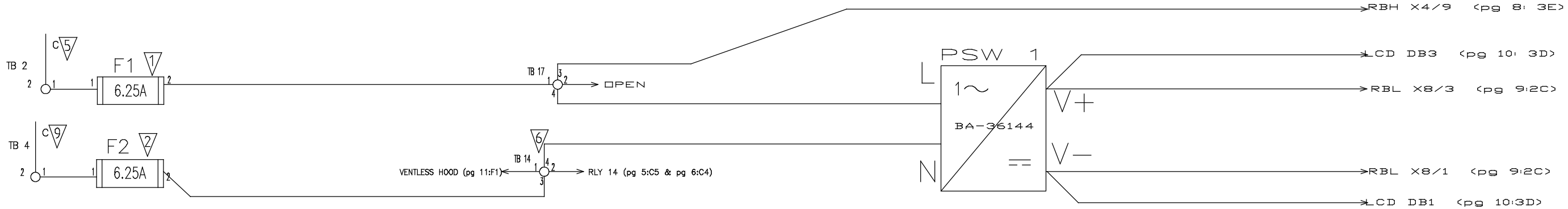
1. F1 COMPRISED OF (FU-34311), (FU-33452
2. F2 COMPRISED OF (TM-34771), (FU-35680)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER (TM-33410)
7. TB15, & TB16 ARE CONNECTED W/ JUMPER (TM-33410)
8.
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

REFERENCE CUT SHEET 5014533

		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM	WIRING DIAGRAM		
	CTX4-10E 208-240V 3PH		
BY: MVQ	DWG: 77421	SHEET 6_OF_12	
DATE: 11/14/11			

CONTROLLER POWER



NOTE:

1. F1 COMPRISED OF (FU-34311), (FU-33452
2. F2 COMPRISED OF (TM-34771), (FU-35680)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER (TM-33410)
7. TB15, & TB16 ARE CONNECTED W/ JUMPER (TM-33410)
8.
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER (TM-33675)
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK comprised of (TM-34771), (FU-34784)
13. FUSE CC comprised of (TM-34771), (FU-34938)

		REFER TO PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM	WIRING DIAGRAM		
	CTX4-10E 208-240V 3PH		
BY: MVQ	DWG: 77421	SHEET 7_OF_12	
DATE: 11/14/11			

AC CONTROL

RBH BA-34875

FUSE 13 (pg 4:D3)

VENTLESS HOOD (pg 9:F8)

VENTLESS HOOD (pg 9:B8) 5015598

X02 (TM-34801) 200 202 204 206 208 210 212 214 216

X01 (TM-34801) 100 102 104 106 108 110 112 114 116

Y3 VALVE D02
Y1 BOILER FILL D03
BOILER DRAINING PUMP D04
Y2 COOLING VALVE D05
CLEANING PUMP D06
D07
CATTALYTIC CONVERTER D10
GAS ALARM 1 D08
GAS ALARM 2 D09

POWER ENABLE D01
K41 D21
K42 D20
K1 BOILER
Y1 BOILER LESS D19
K2 D18
GREASE PUMP D17
CLEAN FLUID PUMP D16
BROILER D15
SMOKER D14
LOW SPEED D13
CCW REAR VIEW D12
CW REAR VIEW D11

X11

X07 Ribbon Cable RBL

X04 (TM-34801) 400 402 404 406 408 410 412 414 416

X03 (TM-34796) 300 302 304 306

Y4 A1 A2

CLEANING PUMP MD-34636 A1 A2

Y2 VA-33723 COLD VALVE A1 NO A2

Y3 VA-33723 CLEANING VALVE A1 NO A2

LS1
TT-35648
THERMAL SWITCH

TB 15 (7)

TB 17-3 (pg 5:C8)

Y1 VA-33723 STEAM VALVE A1 NO A2

FUSE 12 (PG 4:B3)

K52/A1 (pg 3:D6)

K52/21 (pg 3:E6)

DR MOTOR BLUE (pg 6:B5)

TB 12 (6)

K41/A1 (pg 1:C5)

K42/A1 (pg 1:E5)

COOLING FAN FRONT
FA-3568
A2 M A1

COOLING FAN REAR
FA-3568
A2 M A1

1 F3 2 2.0A TM-34311

1 F4 2 2.0A TM-34311

LP-34206

TB 11 OPEN OPEN

RBL X14-3 (pg 7:F4)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM
	CTX4-10E 208-240V 3PH
BY: MVQ	DWG: 77421
DATE: 11/14/11	SHEET 8_OF_12

INPUT SIGNAL CONTROL

VENT SWITCH

VENT MOTOR
VA-26838
M
12Vdc

BLU

RED

RBH & RBL BA-34670

S01

	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	ELECTRIC	GAS
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

34 pole flat ribbon cable, connection to RBL

X07

PSW1 V- pg 5: 8D

PSW1 V+ pg 5: 8C

X08 (TM-34881)

B10

PRODUCT PROBE
PR-33746

902 WHITE
904 GREEN
906 GRN/YEL
908 GRN/WHT
910 GRN/RED

Multi-Point Probe Optional

X09 (TM-34884)

X10 (TM-34884)

OVEN TEMP. PROBE
(PR-33724)

YELLOW
RED
YELLOW

B5

STEAM BYPASS PROBE
(PR-33751)

RED
YELLOW

X11 (TM-34889)

BLUE
RED
YELLOW

B3

COOLING WATER PROBE
(PR-33751)

PR-29650
PRODUCT PROBE

B11

BLACK
WHITE

X12 (TM-34881)

X13 (TM-34884)

TB 11-4 (pg 6:G3)

RBL
BA-34876

X13

X09 Ribbon Cable DB

X06 (TM-34931)

X05 (TM-34931)

X04 (TM-34889)

X03 (TM-34889)

X02 (TM-34934)

X01 (TM-34884)

5015598
VENTLESS HOOD (pg 11:G6)
VENTLESS HOOD (pg 11:G4)

DOOR SW
LT-3738

TWO SPEED

SINGLE SPEED

RLY 9 (pg 3:7F) OR MOTOR HL (pg 4:C8)
RLY 5 (pg 3:7F) OR MOTOR HL (pg 4:C8)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 3PH	
BY: MVQ	DWG: 77421	SHEET 9_OF_12
DATE: 11/14/11		

DISPLAY CONTROL

BA-29719

Simple Plus Display Control

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

PSW1 V- <pg 7:8D>

PSW1 V+ <pg 7:8C>

BA-34778

CTM-34881

1
2
3
4

USB Connection

USB CABLE

BA-34778

Simple Basic

K1 K7

K2 K5 DISP1 K8

K3 K6 DISP2 K11 K9

BA-29718

K4 BUZ K10

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 208-240V 3PH	
BY: MVQ	DWG: 77421	SHEET 10_OF_12
DATE: 11/14/11		

VENTLESS HOOD

TB 16-4 (pg 5:C6)

FU-34784
2 1
5.0
F5

SW-33101
4 3
MAIN SW

SW-35056
COM NO
FILTER SW1

SW-35056
COM NO
FILTER SW2

SW-5014331
NO COM
PRESSURE SW

RBH X1/7 (pg 8:A5)

FA-34860
BLK
1
2
BRWN
BLU
M
FA-34497

1
LT
LT-39551
2

TB19
419
420
410
FU-34777 (1)
FU-34755 (3)
FU-34784 (4)
FUSE 5
411
421
422

TB 14-1 (pg 7:D4)

TB 19-3

TB 19-2

RBH X1/9 (pg 8:A4)

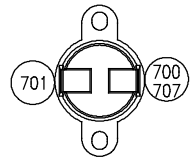
LK-34292
5015598

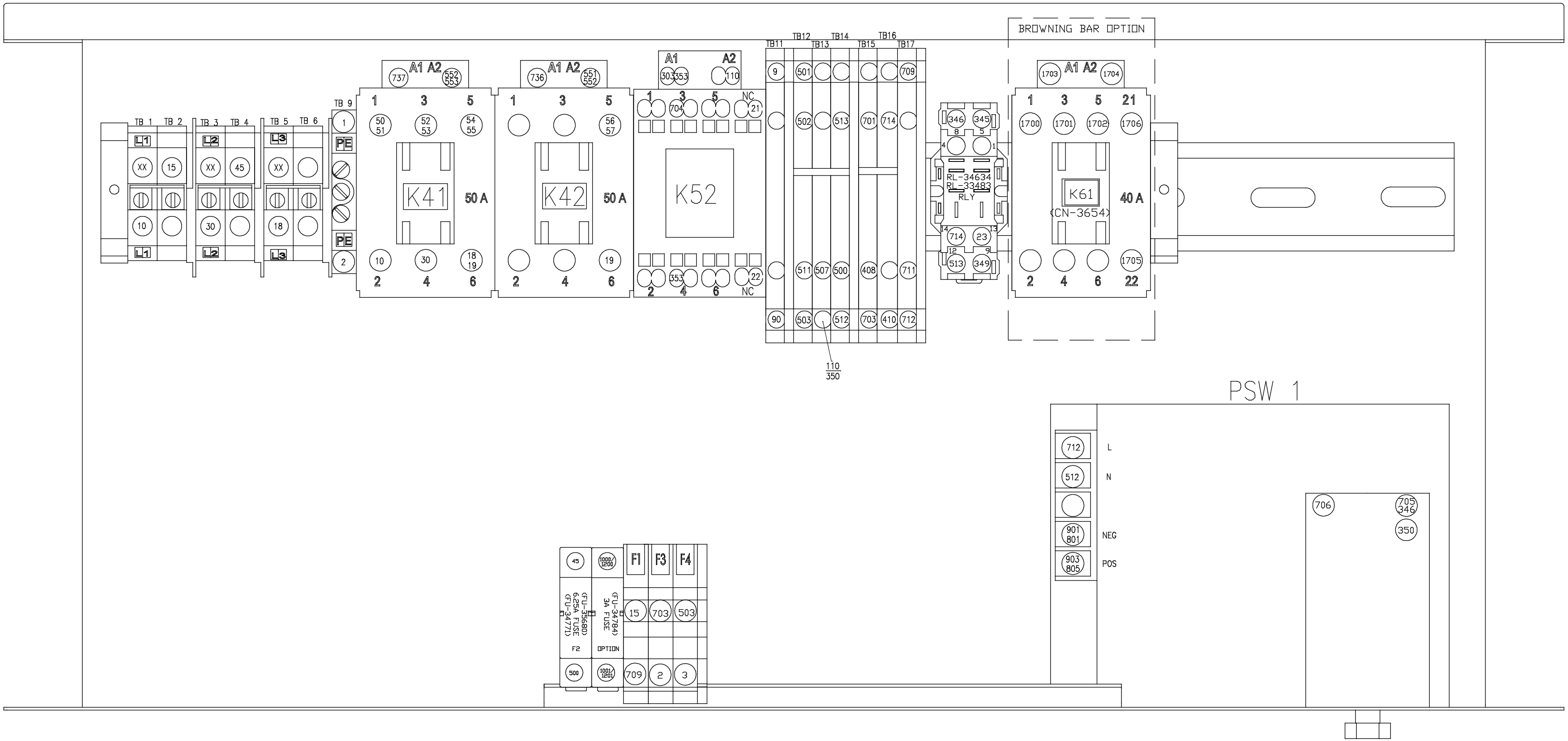
RBL X6/1 (pg 9:C7)
BLU
BLU
RBL X6/2 (pg 9:C7)

		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		CTX4-10E 208-240V 3PH	
BY:	MVQ	DWG: 77421	SHEET 11_OF_12
DATE:	11/14/11		

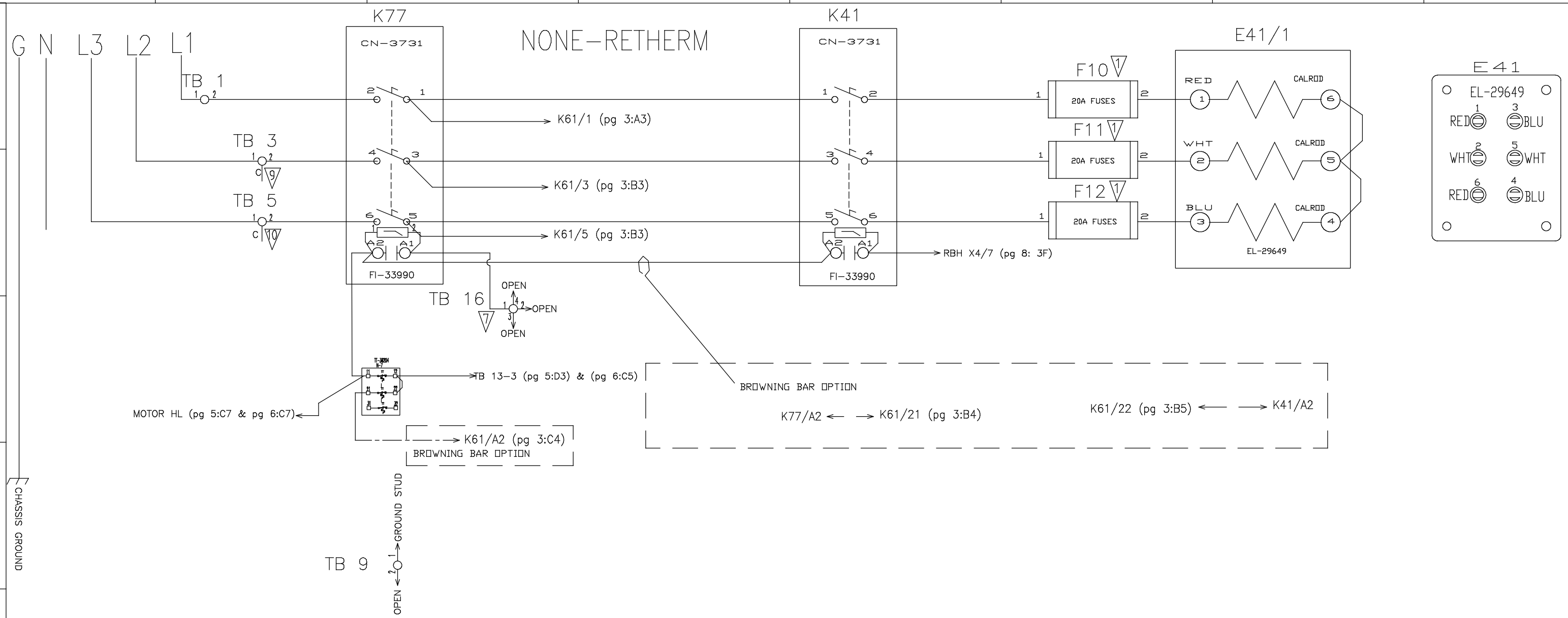
LEGEND





		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		CTX4-10E 208-240V 3PH	
BY:	MVQ	DWG: 77421	SHEET 12_OF_12
DATE:	11/14/11		



NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

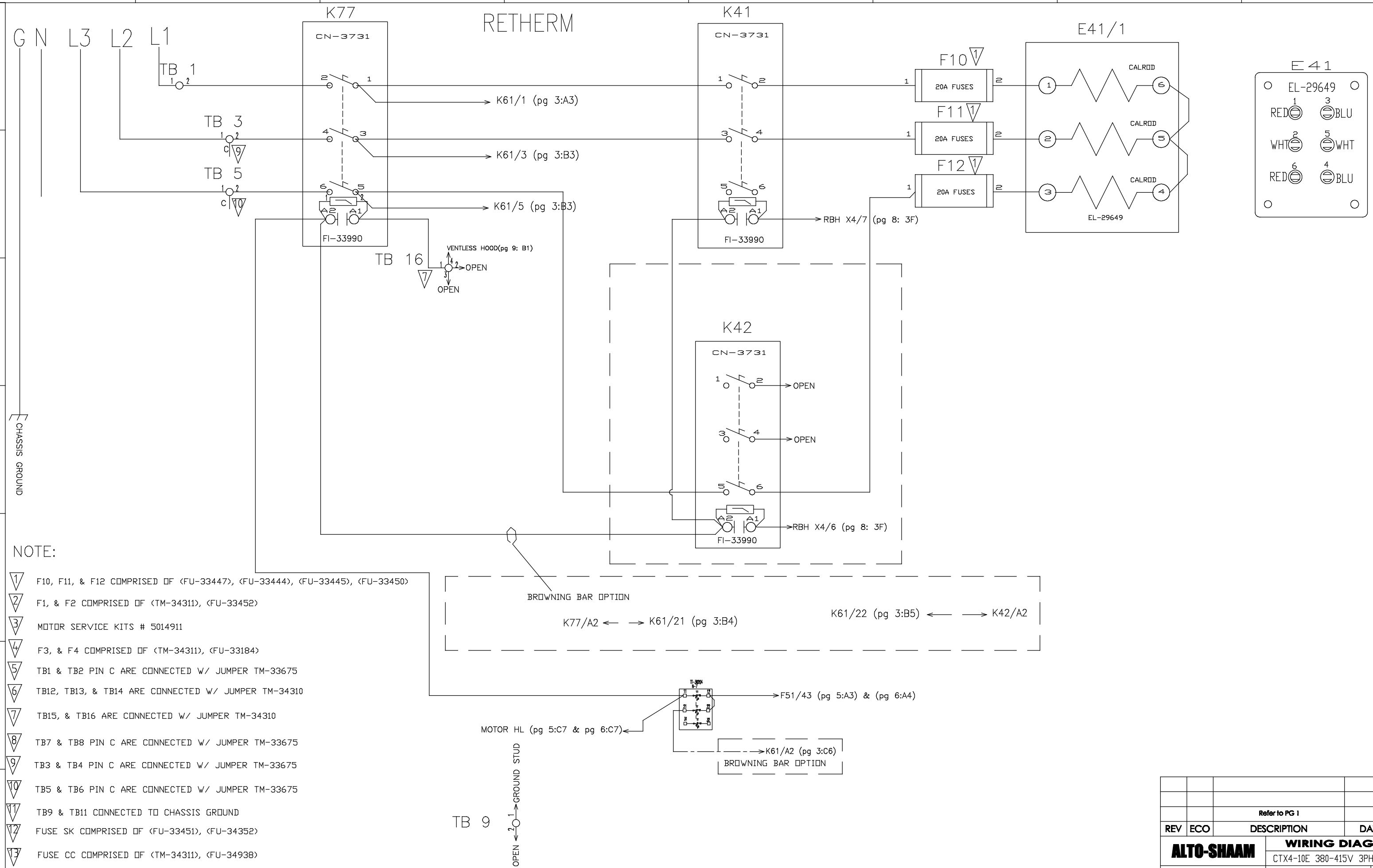
REFERENCE CUT SHEET 5014532
REFERENCE CUT SHEET OPTION EXPRESS 5015608
REFERENCE CUT SHEET OPTION SIMPLE 5015609
REFERENCE CUT SHEET OPTION SMK 5015602
REFERENCE CUT SHEET OPTION CC 5015831
REFERENCE CUT SHEET OPTION BB 5015987

REV	ECO	DESCRIPTION	DATE	APP
12	6721	Replace BA-34508 with BA-36144	10/31/2013	MVQ
11	6674	UPDATE NEW HIGH LIMIT BROWNING BAR WAS EL-35057 (6674)	10/07/2013	MVQ
10	6773	TT-36204 WAS TT-3750	8/19/2013	REJ

ALTO-SHAAM — **WIRING DIAGRAM**

CTX4-10E 380-415V 3PH 50/60Hz

BY: MVQ
DATE: 11/14/11
DWG: 77420
SHEET 1_OF_12



NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 380-415V 3PH 50/60Hz

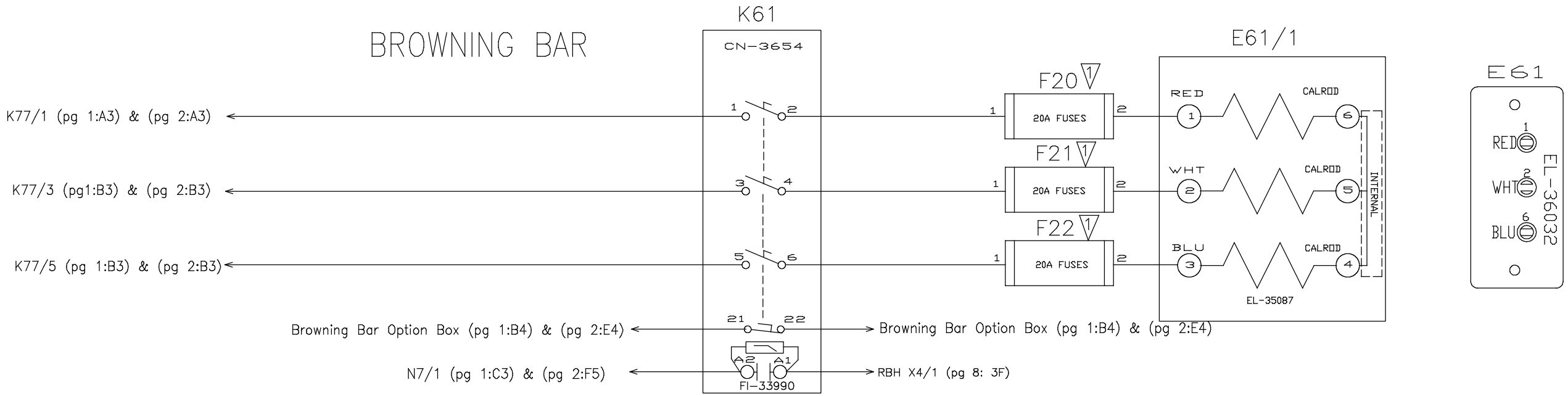
BY: MVQ

DATE: 11/14/11

DWG: 77420

SHEET 2_OF_12

BROWNING BAR



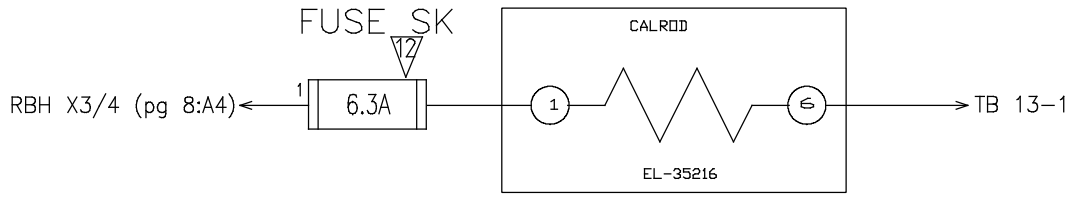
NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

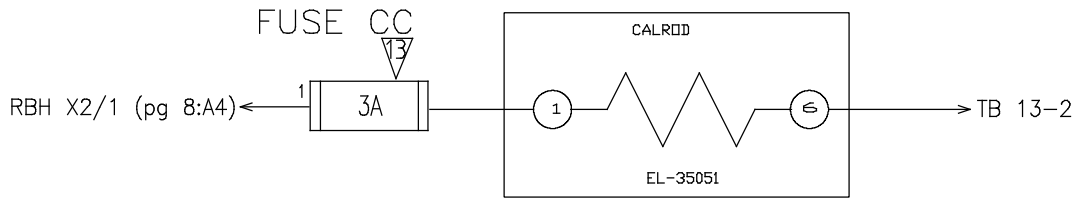
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		**WIRING DIAGRAM**	
		CTX4-10E 380-415V 3PH 50/60Hz	
BY:	MVQ	**DWG:** 77420	**SHEET** 3_OF_12
DATE:	11/14/11		

SMOKER



CATALYTIC CONVERTER



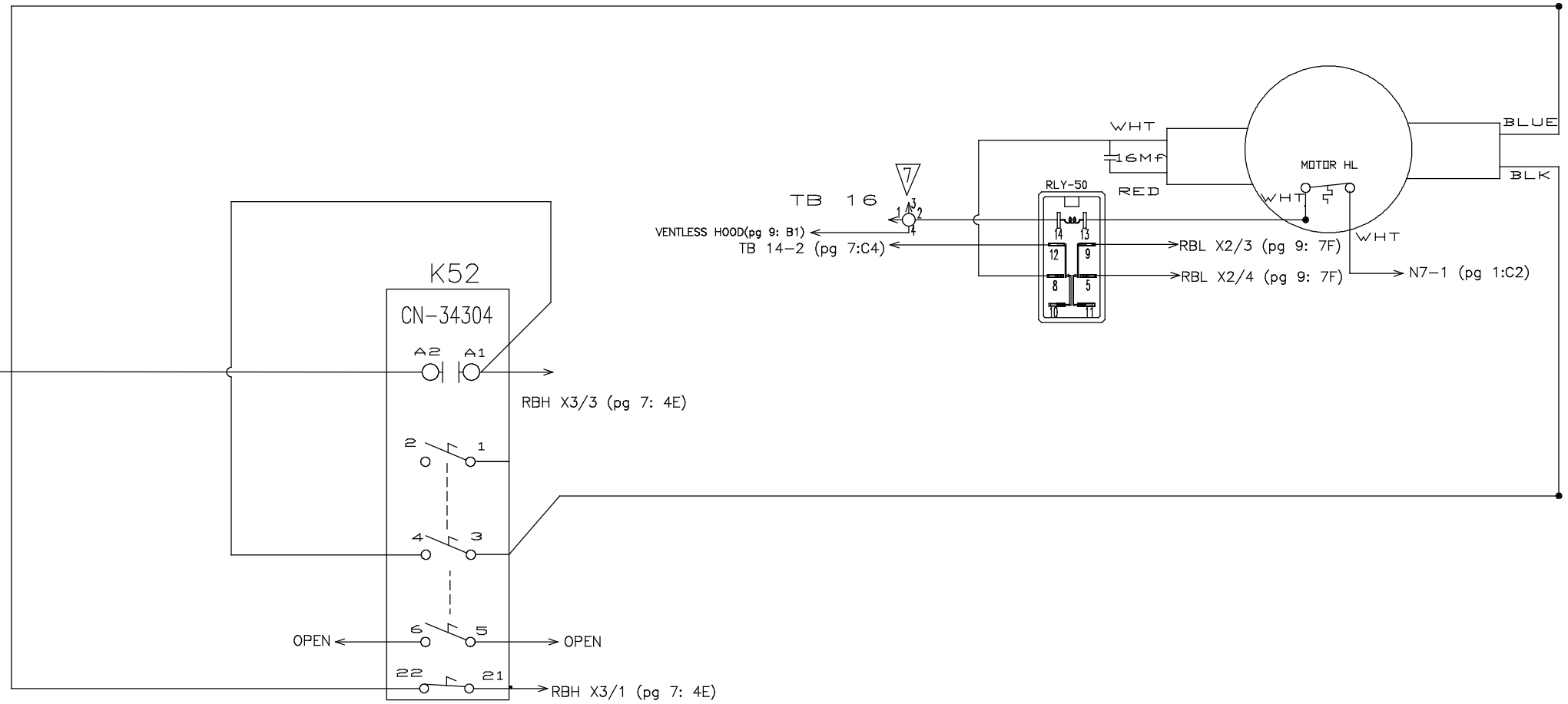
NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		**WIRING DIAGRAM**	
		CTX4-10E 380-415V 3PH 50/60Hz	
BY:	MVQ	**DWG:** 77420	**SHEET** 4_OF_12
DATE:	11/14/11		

TWO SPEED OPTION



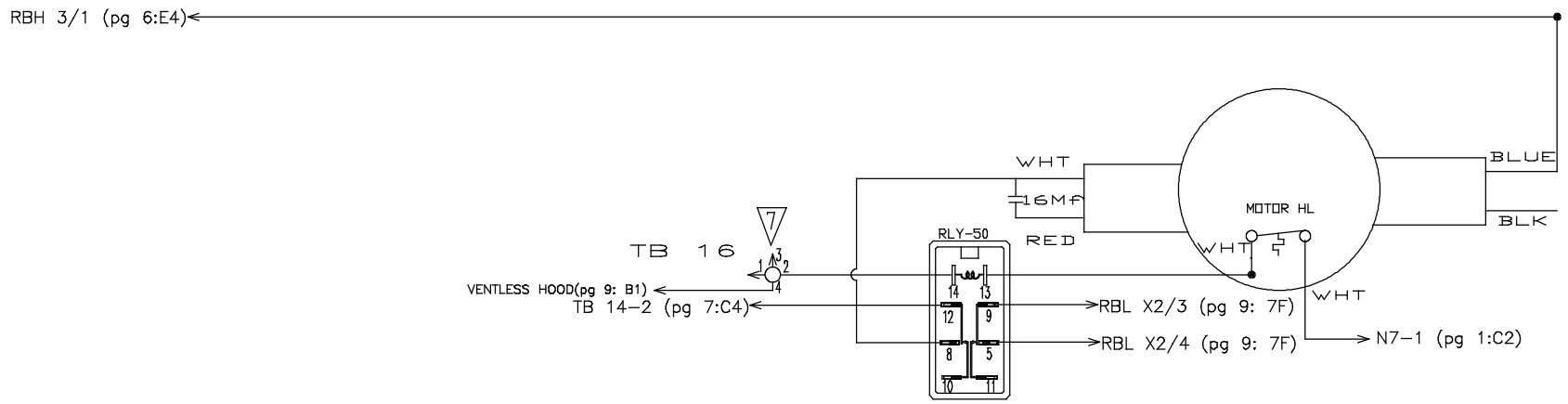
NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 380-415V 3PH 50/60Hz	
BY: MVQ	DWG: 77420	SHEET 5_OF_12
DATE: 11/14/11		

ONE SPEED OPTION



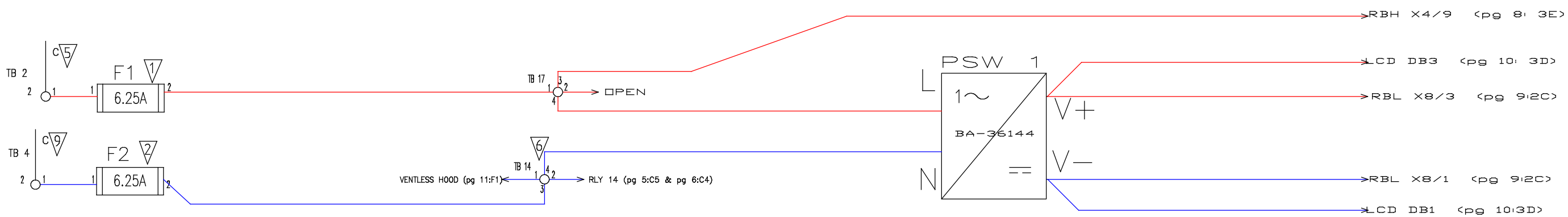
NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM	
	CTX4-10E 380-415V 3PH 50/60Hz	
BY: MVQ	DWG: 77420	SHEET 6_OF_12
DATE: 11/14/11		

CONTROLLER POWER



NOTE:

1. F10, F11, & F12 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)
2. F1, & F2 COMPRISED OF (TM-34311), (FU-33452)
3. MOTOR SERVICE KITS # 5014911
4. F3, & F4 COMPRISED OF (TM-34311), (FU-33184)
5. TB1 & TB2 PIN C ARE CONNECTED W/ JUMPER TM-33675
6. TB12, TB13, & TB14 ARE CONNECTED W/ JUMPER TM-34310
7. TB15, & TB16 ARE CONNECTED W/ JUMPER TM-34310
8. TB7 & TB8 PIN C ARE CONNECTED W/ JUMPER TM-33675
9. TB3 & TB4 PIN C ARE CONNECTED W/ JUMPER TM-33675
10. TB5 & TB6 PIN C ARE CONNECTED W/ JUMPER TM-33675
11. TB9 & TB11 CONNECTED TO CHASSIS GROUND
12. FUSE SK COMPRISED OF (FU-33451), (FU-34352)
13. FUSE CC COMPRISED OF (TM-34311), (FU-34938)
14. F20, F21, & F22 COMPRISED OF (FU-33447), (FU-33444), (FU-33445), (FU-33450)

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 380-415V 3PH 50/60Hz

BY: MVQ

DATE: 11/14/11

DWG: 77420

SHEET 7_OF_12

AC CONTROL

RBH BA-34875

FUSE 13 (pg 4:D3)

VENTLESS HOOD (pg 11:F8)

VENTLESS HOOD (pg 11:B8)

X02 (TM-34801) 200 202 204 206 208 210 212 214 216

X01 (TM-34801) 100 102 104 106 108 110 112 114 116

Y3 VALVE — D27
Y1 BOILER FILL — D23
BOILER DRAINING PUMP — D24
Y2 COOLING VALVE — D25
CLEANING PUMP — D26
D27
CATTALYTIC CONVERTER — D10
GAS ALARM 1 — D28
GAS ALARM 2 — D29

POWER ENABLE — D01
K41 — D21
K42 — D20
K1 BOILER Y1 BOILER LESS — D19
K2 — D18
GREASE PUMP — D17
CLEAN FLUID PUMP — D16
BROILER — D15
SMOKER — D14
LOW SPEED — D13
CCW REAR VIEW — D12
CW REAR VIEW — D11

X11

X07 Ribbon Cable RBL

Y4 CLEANING PUMP MD-34636

Y2 VA-33723 COLD VALVE

Y3 VA-33723 CLEANING VALVE

X04 (TM-34801) 400 402 404 406 408 410 412 414 416

X03 (TM-34796) 300 302 304 306

FUSE 12 (PG 4:B3)

K52/A1 <pg 5:5D>

K52/21 <pg 5:5E>

DR MOTOR BLUE <pg 6:F5>

TB 15

TB17-3 <pg 7:C8>

Y1 VA-33723 STEAM VALVE

K41/A1 <pg 1:C4>

K42/A1 <pg 2:E5>

TB 12

K61/A1 <pg 3:C5>

COOLING FAN FRONT FA-3568

COOLING FAN REAR FA-3568

F3 2.0A TM-34311

F4 2.0A TM-34311

LP-34206

TB 11 OPEN OPEN

RBL X14-3 (pg 9:G4)

LS1 TT-35648 THERMAL SWITCH

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM	WIRING DIAGRAM
	CTX4-10E 380-415V 3PH 50/60Hz
BY: MVQ	DWG: 77420
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INPUT SIGNAL CONTROL

VENT SWITCH

VENT MOTOR
VA-26838
M
12Vdc

BLU

RED

RBH & RBL BA-34670

S01

X07

34 pole flat ribbon cable, connection to RBL

	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	ELECTRIC	GAS
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

PSW1 V- <pg 7: 8D>

PSW1 V+ <pg 7: 8C>

X08 (TM-34881)

X09 (TM-34884) Multi-Point Probe Optional

X10 (TM-34884)

X11 (TM-34889)

X12 (TM-34881)

X13 (TM-34884)

B10

PRODUCT PROBE
PR-33746

902 WHITE
904 GREEN
906 GRN/YEL
908 GRN/WHT
910 GRN/RED

Multi-Point Probe Optional

OVEN TEMP. PROBE
(PR-33724)
B6
YELLOW
RED
YELLOW

STEAM BYPASS PROBE
(PR-33751)
B5
RED
RED
YELLOW

COOLING WATER PROBE
(PR-33751)
B3
BLUE
RED
YELLOW

B11

PR-29650
PRODUCT PROBE

BLACK
WHITE

TB 11-4 (pg 8:G3)

X06 (TM-34931)

X05 (TM-34931)

X04 (TM-34889)

X03 (TM-34889)

X02 (TM-34934)

X01 (TM-34884)

5015598
VENTLESS HOOD (pg 11:G6)
VENTLESS HOOD (pg 11:G4)

DOOR SW
LT-3738

TWO SPEED

SINGLE SPEED

RLY-50 9 <pg 5:F7> OR MOTOR HL <pg 6:C8>

RLY-50 5 <pg 5:F7> OR MOTOR HL <pg 6:C8>

RBL
BA-34876

X13

X09 Ribbon Cable DB

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM

WIRING DIAGRAM
CTX4-10E 380-415V 3PH 50/60Hz

BY: MVQ

DATE: 11/14/11

DWG: 77420

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DISPLAY CONTROL

BA-29719

Simple Plus Display Control

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

PS V- <pg 7:8D>

PS V+ <pg 7:8C>

BA-34778

CTM-34BD

D8:1
D8:2
D8:3
D8:4

USB Connection

USB CABLE

BA-34778

Simple Basic

K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11

DISP1

DISP2

BUZ

BA-29718

26PIN RIBBON CABLE

X13 Ribbon Cable RBL

REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 380-415V 3PH 50/60Hz

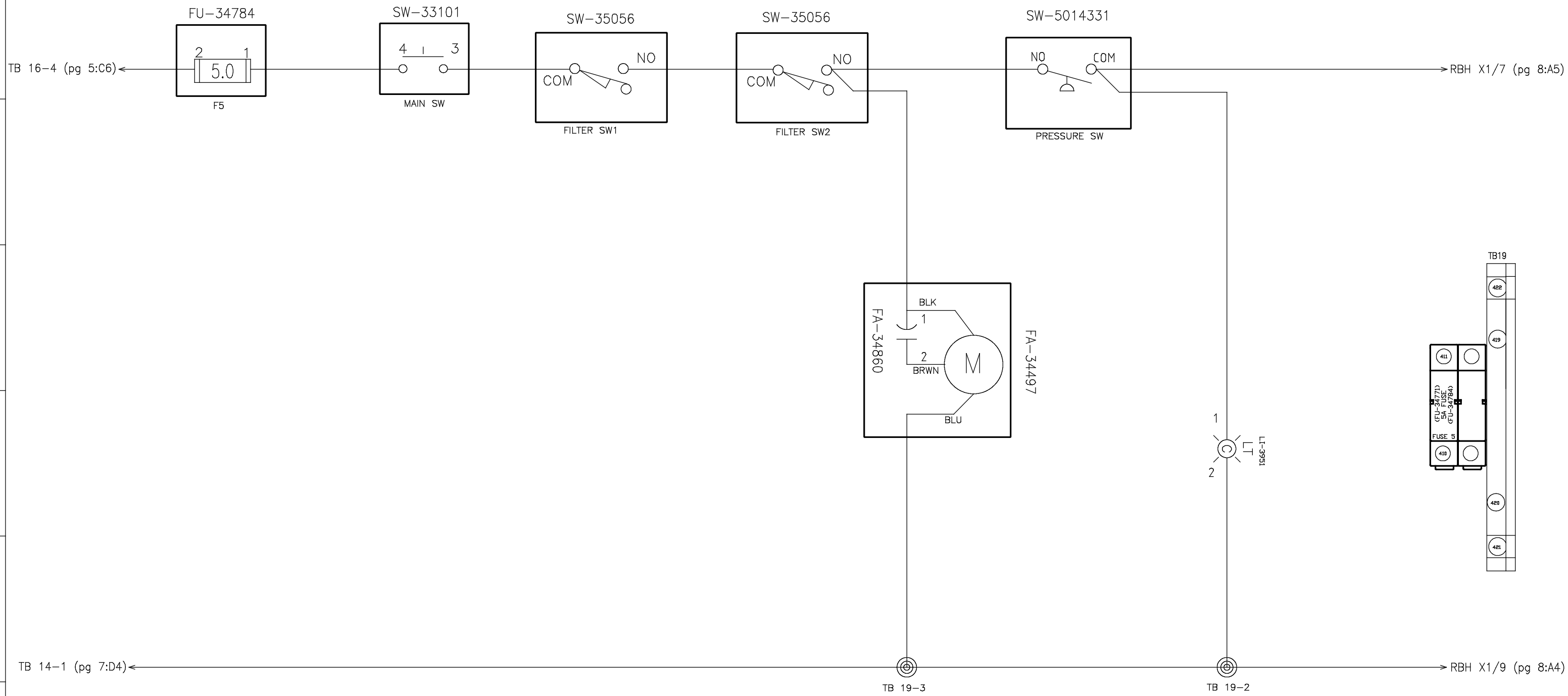
BY: MVQ

DATE: 11/14/11

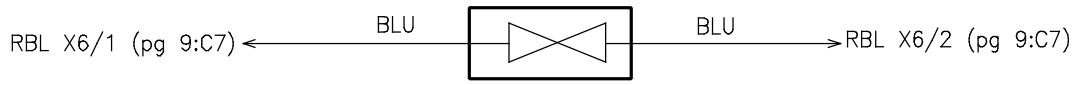
DWG: 77420

SHEET 10_□F_12

VENTLESS HOOD



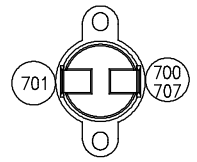
5015598

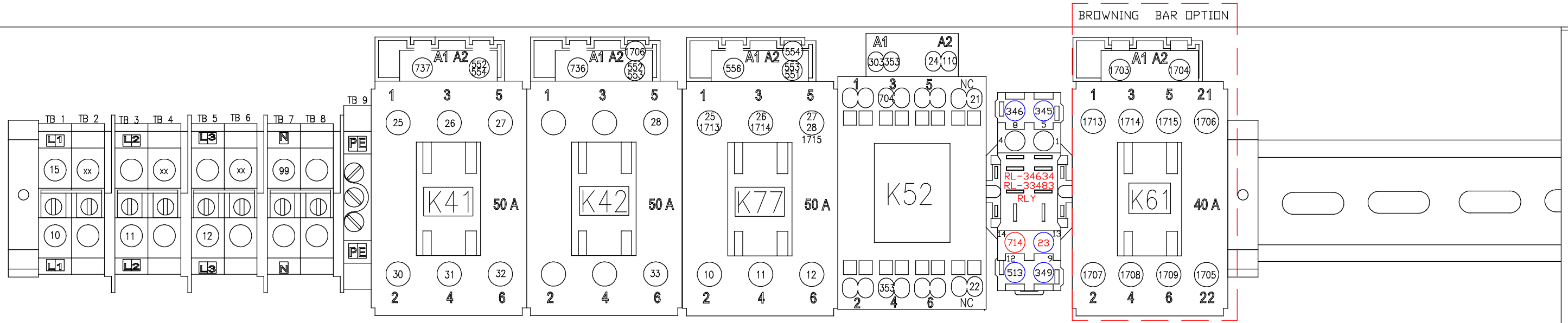


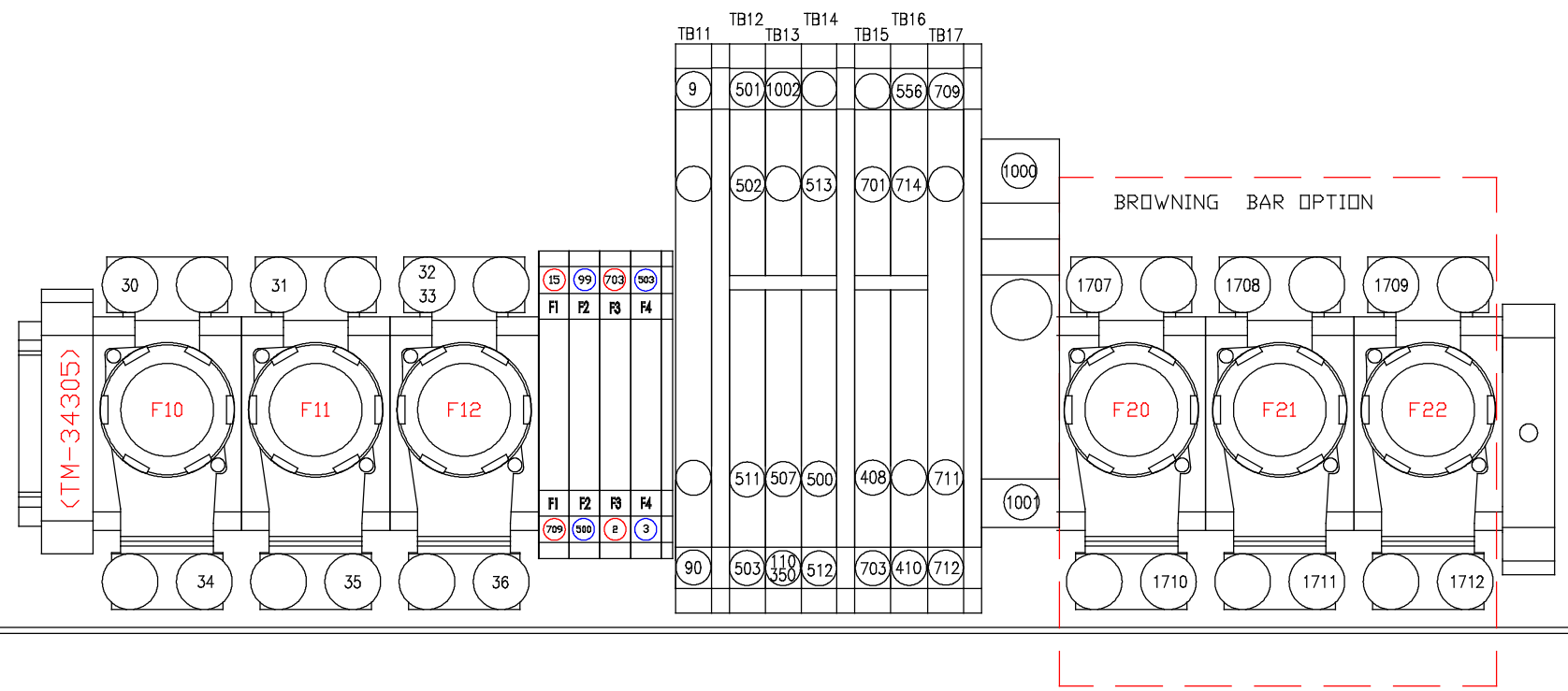
REV	ECO	DESCRIPTION	DATE	APP
		Refer to PG 1		

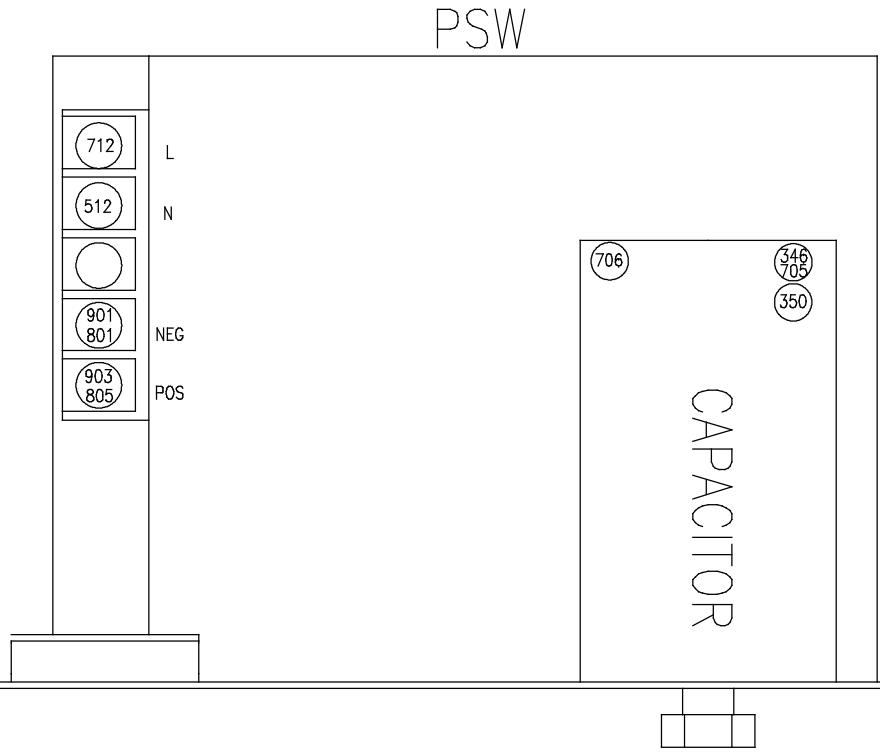
ALTO-SHAAM	WIRING DIAGRAM		
	CTX4-10E 380-415V 3PH		
BY: MVQ	DWG: 77420	SHEET	
DATE: 11/14/11		11_OF_12	

LEGEND









		Refer to PG 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM

WIRING DIAGRAM

CTX4-10E 380-415V 3PH 50/60Hz

BY: MVQ

DATE: 11/14/11

DWG: 77420

SHEET 12_OF_12